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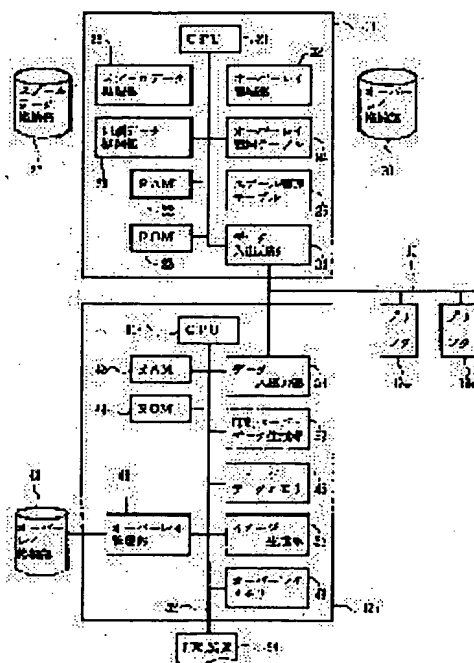
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(54) PRINTING SYSTEM

(57)Abstract:

PURPOSE: To perform printing processing at printer side by always applying proper printing resources.

CONSTITUTION: At a host computer 11, information such as dates is added to resources necessary for printing such as overlay and font so as to control the number of plates. Thus, the latest printing resource can be sent to printers 131-13N. Even if a printing resource is the same kind, the name of it is changed every time it is renewed, so that erroneous application of this printing resource at printing can be prevented.



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CLAIMS

[Claim(s)]

[Claim 1] A transmission line and the printer which prints using printing resources, such as overlay which is connected through this transmission line and demanded as a resource at the time of print data and its printing processing, A print-data storing means to store print data, and a printing resource storing means to store a printing resource, The number management tool of versions which manages each number of versions of the printing resource stored in the printing resource storing means, The print system characterized by providing the print control unit equipped with a transfer means to transmit a printing resource and print data to a printer, and the printing resource selection means which chooses the newest printing resource of the number of versions, and is made to transmit to said transfer means.

[Claim 2] A transmission line and the printer which is connected through this transmission line and prints by specifying that name about a printing resource using printing resources, such as overlay demanded as a resource at the time of print data and its printing processing, A print-data storing means to store print data, and a printing resource storing means to store a printing resource, The print system characterized by providing the print control unit equipped with an assumed-name grant means to change the name whenever it updates the printing resource stored in the printing resource storing means, and a transfer means to transmit a printing resource and print data to a printer.

[Claim 3] A transmission line and the printer which prints using printing resources, such as overlay which is connected through this transmission line and demanded as a resource at the time of print data and its printing processing, A print-data storing means to store print data, and a printing resource storing means to store a printing resource, The managed table which manages the printing resource which exists in a printer, and the information about the updating, The print system characterized by providing the print control unit equipped with a transfer means to transmit a printing resource and print data to a printer, and a printing resource deletion means to make it eliminate except the newest thing among each printing resource in a printer using said managed table.

[Claim 4] A transmission line and the printer which prints using printing resources, such as overlay which is connected through this transmission line and demanded as a resource at the time of print data and its printing processing, A print-data storing means to store print data, and a printing resource storing means to store a printing resource, A transfer means to transmit to a printer the printing resource which accompanies two or more print data and these which were stored in these storing means, A completion distinction means of printing processing to distinguish this when printing processing is completed about all the print data transmitted by this transfer means, The print system characterized by providing the print control unit equipped with an updating timing setting means to make said printing resource update when the completion distinction means of printing processing distinguishes completion of printing processing.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the print system which was made to perform printing processing using the printing resource needed like a font or the pattern of overlay at the time of printing.

[0002]

[Description of the Prior Art] In case various kinds of printings by the printer are performed, printing resources, such as a font required for printing of not only text data but an alphabetic character etc. and a pattern (only henceforth overlay) of the overlay in the case of document printing, are needed. What is used frequently of the printing resources, for example, about the font of the Mincho typeface of a standard character size, the printer side holds for storage means, such as ROM (read only memory), is usual.

[0003] In the case of the print system by which a place prints a document, various kinds of overlay is needed, and, moreover, these are not fixed. Therefore, it is impossible to make these prepare for a printer side altogether in practice. Similarly, when printing using a special font or a special image, a printer side is not equipped with these printing resources in many cases.

[0004] So, in the former, when printing, for example using overlay, the technique of transmitting to a printer the overlay used for the printing in advance of a transfer of print data unconditionally was taken. However, since overlay was transmitted to whenever [that] at the printer when this technique was used, the load to a communication link increased and there was a problem that it could not print efficiently. Moreover, in a printer side, it will print with the application of the transmitted overlay unconditionally. Therefore, since the situation of applying to the print data before updating sent with the overlay near at hand after updating to the print data sent later occurred when printing processing was delayed, also when desired printing was not performed, it was.

[0005] Then, when a printer side requires overlay, he is trying for a print control unit side to transmit this by the proposal shown in JP,63-130362,A. The situation where the overlay which is not meant after updating by this will be applied to print data is avoidable.

[0006]

[Problem(s) to be Solved by the Invention] However, when new print data are received according to this proposal, reclaim of the overlay as that in which overlay of the same class exists is not performed, but the situation where the overlay before updating to new print data after all will be applied is made generated.

[0007] Moreover, generally, once it stores print data in the spool data storage means which consists of a magnetic disk by the side of a printer etc., they are read, and they perform printing processing. The print data stored in this spool data storage means are not read in order of that storing, and are not necessarily processed. For example, the print data which print by the overlay before updating, and the print data which print by the overlay after updating may be processed together. In such a case, the case where the overlay applied to print data is unsuitable arises.

[0008] Then, the purpose of this invention is to offer the print system which enabled it to perform printing processing with the application of an always suitable printing resource by the printer side.

[0009]

[Means for Solving the Problem] invention according to claim 1 — the transmission line of a (b) telecommunication cable etc., and (b) — it connecting through this transmission line and with the printer which prints using printing resources, such as overlay demanded as a resource at the time of print data and its printing processing A print-data storing means to store print data, and a printing resource storing means to store a printing resource, (Ha) The number management tool of versions which manages each number of versions of the printing resource stored in the printing resource storing means, A print system is made to possess the print control unit equipped with a transfer means to transmit a printing resource and print data to a printer, and the printing resource selection means which chooses the newest printing resource of the number of versions, and is made to transmit to said transfer means.

[0010] That is, a print control unit manages the number of versions about a printing resource, and the printer side enables it to always use the newest printing resource by transmitting the newest thing to a printer by invention according to claim 1.

[0011] It connects through this transmission line. invention according to claim 2 — the transmission line of a (b) telecommunication cable etc., and (b) — The printer which prints by specifying the name about a printing resource using printing resources, such as overlay demanded as a resource at the time of print data and its printing processing, A print-data storing means to store print data, and a printing resource storing means to store a printing resource, (Ha) A print system is made to possess the print control unit equipped with an assumed-name grant means to change the name whenever it updates the printing resource stored in the printing resource storing means, and a transfer means to transmit a printing resource and print data to a printer.

[0012] That is, change the identifier, whenever it updates a printing resource by the print control unit side, it is made to be made to send out to a printer side, and it is made to be made to perform the use by the printer side by invention according to claim 2, specifying the identifier of a printing resource. These can be distinguished and used even when two or more printing resources use by this that from which the number of versions differs with the printing resource of the same class.

[0013] invention according to claim 3 — the transmission line of a (b) telecommunication cable etc., and (b) — it connecting through this transmission line and with the printer which prints using printing resources, such as overlay demanded as a resource at the time of print data and its printing processing A print-data storing means to store print data, and a printing resource storing means to store a printing resource, (Ha) The managed table which manages the printing resource which exists in a printer, and the information about the updating, A print system is made to possess the print control unit equipped with a transfer means to transmit a printing resource and print data to a printer, and a printing resource deletion means to make it eliminate except the newest thing among each printing resource in a printer using a managed table.

[0014] That is, in invention according to claim 3, the managed table for managing the printing resource of each printer is made to prepare for a print control unit side, and when the printing resource from which the number of versions of the same class differs by the printer is used one after another, as an old thing is erased, management of a printing resource is realized.

[0015] invention according to claim 4 — the transmission line of a (b) telecommunication cable etc., and (b) — it connecting through this transmission line and with the printer which prints using printing resources, such as overlay demanded as a resource at the time of print data and its printing processing A print-data storing means to store print data, and a printing resource storing means to store a printing resource, (Ha) A transfer means to transmit to a printer the printing resource which accompanies two or more print data and these which were stored in these storing means, A completion distinction means of printing processing to distinguish this when printing processing is completed about all the print data transmitted by this transfer means, When the completion distinction means of printing processing distinguishes completion of printing processing, a print system is made to possess the print control unit equipped with an updating timing setting means to make said printing resource update.

[0016] That is, by invention according to claim 4, when two or more print data by one printer are processed, these printing advance situations are supervised and the printing resource with which the numbers of versions differ is arranged because it is made to update a printing resource when

all of these processings are completed.

[0017]

[Example] This invention is explained to a detail per example below.

[0018] Drawing 1 expresses the functional configuration of the print system in one example of this invention. the 1st - the 131-13 Ns of the Nth printer by which this print system was connected with the host computer 11 as a print control unit through the telecommunication cable 12 from -- it is constituted.

[0019] CPU (central processing unit)21 which performs the control, RAM (random access memory) 22 as working-level month memory, ROM (read only memory)23 which stored the program and the fixed data for an equipment startup, the overlay management table 24 for overlay management, and the spool management table 25 for spool data control are connected to the host computer 11 through the buses 26, such as a data bus. Moreover, storage means and passive circuit elements, such as a magnetic disk which similarly is not illustrated through the input/output port which is not illustrated, are connected to the bus 26.

[0020] CPU21 realizes various kinds of functions by reading the program stored in this storage means on RAM22, and performing it. As such a function part, it is [the spool data-processing section 28 which connected the spool data storage section 27, the overlay management section 32 which connected the overlay storing section 31, the print-data processing section 33 which performs processing of print data, and] 131-13 Ns of each printer. The data I/O section 34 which performs input/output control of the data to receive can be mentioned.

[0021] Since it is identitas substantially, the Nth configuration of the 1st connected to the telecommunication cable 12 - a printer is the 1st printer 131 here. A configuration is explained concretely. The 1st printer 131 It has CPU41. Storage means and passive circuit elements, such as a magnetic disk which CPU41 similarly does not illustrate through RAM43 as working-level month memory, ROM44 which stored the program and the fixed data for equipment starting, the page data memory 45 which stores page data, the overlay memory 46 which stores overlay, and the input/output port which is not illustrated through the buses 42, such as a data bus, are connected.

[0022] CPU41 realizes various kinds of functions by reading the program stored in this storage means on RAM43, and performing it. As such a function part, the overlay management section 49 which connected the overlay storing section 48, the image generation section 51 which performs generation of an image, the printing page data generation section 52 which generates the data of a printing page, and the data I/O section 53 which performs input/output control of the data to a host computer 11 can be mentioned. Moreover, the above mentioned input/output port is minded [42] and it is an airline printer 541. It connects. Airline printer 541 For example, it is constituted by the laser beam printer and printing of a document etc. will be performed.

[0023] Next, each part in such a print system is explained.

[0024] Explanation inside a host computer [0025] (a) Spool data-processing section [0026] The spool data-processing section 28 processes following (1) - (3). First, print data are acquired from (1) spool data storage section 27, and processing which delivers this to the print-data processing section 33 is performed.

[0027] Drawing 2 expresses the configuration of the spool data stored in the spool data storage section. Sequential storing of two or more print data 611, 612, and is carried out at the spool data storage section 27 which consists of magnetic disks etc. These print data 611, 612, and are read one by one, and are transmitted to an airline printer 54.

[0028] Moreover, the spool data-processing section 28 deletes reception and the corresponding print data for the notice of the completion of printing from the spool data storage section 27 from (2) data I/O section 34. At this time, the identification information about the print data which printing completed to the overlay management section 32 is notified. Furthermore, if the spool data-processing section 28 has the inquiry about the situation of (3) overlay management sections 32 to the spool data storage section 27, it will notify all the identifiers of the print data 611 which exist in this, 612, and The spool data-processing section 28 will repeat processing of the above (1) - (3) until all of the print data 611 in the spool data storage section 27, 612, and are lost.

[0029] (b) Print-data processing section [0030] The print-data processing section 33 processes

following (1) – (3). First, print data are transmitted to reception from the spool data-processing section 28, and the identifier is transmitted to the printer (here, it explains as the 1st printer 131.) of a printing place from the data I/O section 34.

[0031] Drawing 3 expresses the configuration of print data. Print data 61 consist of the renewal directions column 62 of overlay which directs it, an overlay application directions column 63 which directs what kind of overlay is applied to print data, a text data printing directions column 641 which stores text data in order of unit quantity every [predetermined], and 642, when overlay needs to be transposed to the newest thing. The creation data applied to printing is entered in the overlay application directions column 63 as the identifier of the overlay applied here.

[0032] Therefore, when overlay is updated one after another, the class and the number of versions of overlay which are applied can be specified by specifying the date by which the identifier of the overlay applied to print data and the overlay to apply were created or updated. Of course, if the purport which updates overlay is directed in the renewal directions column 62 of overlay, the newest overlay can be applied to print data, without being related to this.

[0033] The print-data processing section 33 directs renewal of overlay to the overlay management section 32, when updating directions of the purport replaced with the newest overlay are performed in the renewal directions column 62 (refer to drawing 3) of overlay of the (2) print data 61. Moreover, when there is description which specifies overlay as the overlay application directions column 63 of the (3) print data 61, these overlay name and creation data are notified to the overlay management section 32.

[0034] (c) Data I/O section [0035] The data I/O section 34 processes following (1) – (5). First, reception and the 1st printer 131 aiming at this It transmits. [print data / 61 (drawing 3) / (1) print-data processing section 33 to] Moreover, overlay is received from (2) overlay management sections 32, and it is the 1st printer 131 about this. It transmits.

[0036] Drawing 4 expresses the configuration of overlay. overlay 71 — the overlay name 72, creation data 73, and a version (version; version) — it consists of overlay objects 76 showing information like a bibliography, such as 74 and an implementer 75, and the image of overlay.

[0037] The data I/O section 34 is the 1st printer 131 about this again, when printing directions of overlay are received from (3) overlay management sections 32. It transmits. the 131-13 Ns of and the (4) 1st-Nth printer from — if the identifier of the print data which ended printing is received, this will be notified to the spool data-processing section 28. Furthermore, the data I/O section 34 transmits it to the printer 13, when there are directions of the purport which changes the identifier of the overlay stored in the overlay storing section 48 in the predetermined printer 13 from (5) overlay management sections 32. Moreover, when there are directions of the purport which eliminates the specific overlay in the predetermined printer 13 from the overlay management section 32, the directions are transmitted to the printer 13.

[0038] (d) Overlay management section [0039] The overlay management section 32 performs processing which is different the case of the employment gestalt which updates (1) overlay unconditionally, and in the case of the employment gestalt which updates overlay by (2) criteria specification. These are explained in detail later.

[0040] Explanation inside a printer [0041] (e) Data I/O section [0042] The data I/O section 53 processes (1) – (4). First, the print data 61 shown in (1) drawing 3 are received from a host computer 11, and this is transmitted to the printing page data generation section 52. Moreover, the printing directions about (2) overlay are received from a host computer 11, and it transmits to the overlay management section 49. Furthermore, if overlay is received from the (3) host computer 11, this will be transmitted to the overlay management section 49. Moreover, if the (4) airline printer 54 terminates printing and print-data completion information is outputted, this will be received and it will transmit to a host computer 11 side.

[0043] (f) Printing page data generation section [0044] First, the printing page data generation section 52 adds directions of the purport which prints the overlay generated by the image generation section 51 to the page information for printing directions of the corresponding page, when (1) overlay management section 49 directs printing of overlay. Moreover, the print data received in (2) data I/O section 53 are divided per page, and it transmits to the page data memory 45.

[0045] (g) Overlay management section [0046] The overlay management section 49 processes following (1) - (4) in response to directions from the data I/O section 53. When there are directions of the purport which prints (1) overlay first, the corresponding overlay is transmitted to the image generation section 51, and the image of overlay is made to generate. Moreover, the identification information is transmitted to the printing page data generation section 52.

[0047] Moreover, the overlay is stored in the overlay storing section 48 if (2) overlay is transmitted to the image generation section 51. Furthermore, the change is made when directions of the purport which changes the identifier of overlay are received. Moreover, when directions of the purport which eliminates (4) overlay are received, the corresponding overlay is eliminated from the overlay storing section 48.

[0048] (h) Image generation section [0049] The image generation section 51 performs processing of the following (1) and (2). That is, when overlay has been transmitted from (1) overlay management section 49, the identification information corresponding to the overlay and this is recorded on the overlay memory 46. Moreover, a printing page is changed into reception from (2) page data memory 45, this is changed into a raster image, and it outputs to an airline printer 54. And the data of the printing page which corresponds from the page data memory 45 whenever sending out for 1 page is performed are eliminated. About the printing page printing of overlay is instructed to be, in case a raster image is sent out to an airline printer 54, the overlay whose identification information corresponds will be changed into a raster image, and it will output to an airline printer 54 at coincidence.

[0050] (i) Airline printer [0051] In an airline printer 54, from the image generation section 51, it receives and a raster image is outputted to the print sheet which is not illustrated. When the last page about print data is printed out, the identifier of the print data which printing ended is notified to the data I/O section 53.

[0052] Next, explanation about the part which should serve as the description is given to a degree about the print system explained above.

[0053] Processing according to employment gestalt of the overlay management section [0054] The overlay management section 32 by the side of a host computer 11 performs processing which is different the case of the employment gestalt which updates (1) overlay unconditionally as explained previously, and in the case of the employment gestalt which updates overlay by (2) criteria specification.

[0055] [(in the case of the employment gestalt which updates overlay unconditionally) 0056] In the case of this employment gestalt, the overlay set as the overlay stored in the overlay storing section 31 in a host computer 11 and the printing object in a printer 13 is in agreement, and printing is always performed within a printer 13 using the newest overlay.

[0057] Drawing 5 expresses the flow of processing of the overlay management section in the employment gestalt which updates overlay unconditionally. If the print-data processing section 33 performs printing directions of overlay, refer to the overlay management table 24 for the overlay management section 32 (step S101). And it judges whether the specified overlay is registered into this (step S102).

[0058] Drawing 6 expresses an example of the contents of the overlay management table. The overlay name 81, original creation data 82, and the changed original overlay name 83 are entered in the overlay management table 24 for every overlay. For example, it supposes that the original overlay name 81 is "the overlay name 1", and supposing the creation data is "creation data 1", an identifier is not changed yet but, as for this, the "overlay name 1" itself is the overlay name 83. Then, updating should be performed under the date of "creation data 2." In this case, it is registered as an overlay name 83 by which "the assumed name 1" was changed about the overlay after [that] being changed. Furthermore, if updating is performed under the date of "creation data 3", the overlay name 83 will be further changed into "an assumed name 2" about the changed overlay.

[0059] In the example shown in drawing 6, as for this overlay of "the overlay name 1", updating is further performed under the date of "creation data 3", and the original overlay name 81 turns into the overlay name 83 by which "the assumed name 5" was then changed. About overlay of "the overlay name 2", it will be created for the first time by "creation data 4", will be updated by the

creation data shown by "creation data 6", and will be changed into "an assumed name 6."

[0060] The example of data actually written down in the overlay management table 24 is expressed with this drawing 6 to the lower three column 64. that overlay of the original overlay name 81 "KANRI" was created in this example on August 13, 92, this was updated on August 20, 92, and the overlay name 83 was set to "\$00009", and this — further — it is meant as data that it was updated on September 10, 92 and the overlay name 83 was set to "\$00010."

[0061] It returns to drawing 5 and explanation is continued. When the corresponding overlay is registered into the overlay management table 24, (step S103; Y) and its overlay 71 (drawing 4) are read from the overlay storing section 31, and the creation data 73 is compared with the creation data 82 in the overlay management table 24 of drawing 6 (step S105). Consequently, when both are not in agreement (i.e., when the creation data 73 of the overlay 71 read from the overlay storing section 31 is newer) (step S106; N), that updated overlay 71 is transmitted to a printer 13 through the data I/O section 34 (step S107). And the creation data of the overlay management table 24 is updated (step S108).

[0062] Drawing 7 expresses the important section of an overlay management table. The overlay name 83 the "overlay name 1" of the creation data 82 expressed with the "creation data 1" of the overlay management table 24 is updated by the creation data 82 expressed with "the creation data 2", and the overlay name 83 is also changed into "the overlay name 2."

[0063] Thus, when renewal of the creation data of the overlay management table 24 is performed, printing which used the overlay object 76 in this overlay 71 for the printer 13 of relevance is directed (step S109). That is, the newest overlay object 76 which a host computer 11 owns will be transmitted to a printer 13 in this case, and printing will be performed using this.

[0064] When the overlay 71 as which printing was specified at step S103 is not registered into the overlay management table 24 on the other hand, the overlay 71 is transmitted to a printer 13 through (N) and the data I/O section 34 (step S110). In this case, since that overlay 71 is new, this is newly registered into the overlay management table 24 (step S111). And printing which used the overlay object 76 of this overlay 71 for the printer 13 of relevance will be directed (step S109).

[0065] Moreover, when the creation data 73 of the overlay 71 read from the overlay storing section 31 at step S106 is in agreement with the creation data 82 of the overlay management table 24, it will be said that the overlay 71 which (Y) and a printer 13 own is the newest thing. Then, a transfer of overlay 71 will not be performed in this case, but printing which used the overlay object 76 in this overlay 71 will be directed immediately (step S109).

[0066] [(in the case of the employment gestalt which updates overlay by criteria specification)

0067] Next, the case where assignment of creation data is performed to the print data 61 shown in drawing 3 is explained. In this case, overlay of the date by which both new overlay and old overlay were kept and specified as the printer 13 interior will be used for printing.

[0068] Drawing 8 expresses the flow of processing of the overlay management section at the time of receiving printing directions of overlay from the print-data processing section. If the print-data processing section 33 performs printing directions of overlay, refer to the overlay management table 24 for the overlay management section 32 (step S201). And it judges whether the specified overlay is registered into this (step S202), and if not registered (step S203; N), processing at the time of registration nothing is performed (step S204).

[0069] Drawing 9 expresses the contents of the processing at the time of registration nothing [in step S204 of drawing 8]. In this case, the overlay 71 shown in drawing 4 is inputted (step S301), and distinction of whether to be within the limits of the creation date when that creation data 73 was specified with print data 61 is performed (step S302). For example, the assignment "July 1, 92 to July 15, 92" is performed as creation data assignment of the overlay application directions column 63 of print data, and when there is nothing that corresponds to this as creation data 73, the same processing as the case where (step S303; N) and overlay 71 are absent is performed (step S304). Step S110 and step S111 of drawing 5 explained this. That is, since there is no overlay 71 specified in this case, that overlay 71 stored in the overlay storing section 31 is transmitted to a printer 13, and it is made to use it for printing.

[0070] On the other hand, when the thing of the date of creation data assignment of the overlay application directions column 63 of print data is registered into the overlay management table 24,

(step S303; Y) and its specified overlay 71 are transmitted to a printer 13 through the data I/O section 34 (step S305). Next, this is registered into the overlay management table 24 with the creation data (step S306). And printing which used the overlay object 76 in this overlay 71 for the printer 13 of relevance will be directed (step S307). That is, printing will be performed in this case using the overlay 71 of the number of versions specified with print data.

[0071] It returns to drawing 8 and explanation is continued. When judged with the specified overlay being registered into the overlay management table 24, retrieval of whether the thing of the creation date specified with print data 61 by the same overlay 71 within the limits exists is performed to (step S203; Y) and a degree (step S205). If a thing within the limits does not exist (step S206; N), since the overlay object with the same origin itself exists, the overlay management section 32 will be directed to the printer 13 of relevance by printing which used the overlay object (step S207).

[0072] On the other hand, when the overlay 71 of the creation date specified with print data 61 within the limits is registered into the overlay management table 24, (step S206; Y) and its overlay are inputted from the overlay storing section 31 (step S208). And it judges whether the creation data 73 of the overlay 71 is within the limits of assignment (step S209), otherwise, (step S210; N) overlay 71 performs processing at the time of an absence (step S211). This is the same as that of processing of step S304.

[0073] If the creation data 73 of the overlay 71 is within the limits of assignment (step S210; Y), the assumed name corresponding to the overlay 71 will be generated (step S212). This is the overlay name 83 after modification explained by drawing 6. If it generates with the serial number as shown in "\$00009" shown in drawing 6, and "\$00010", the old and new exception of an assumed name will be intelligible, and it will not have a possibility that a browsing name may overlap.

[0074] The overlay management section 32 makes the overlay 71 which changed its name transmit to the printer 13 of relevance from the data I/O section 34 (step S213). Then, this is newly registered into the overlay management table 24 with creation data (step S214). At this time, the assumed name of registering as an overlay name 83 after modification is natural. Printing which used the overlay object 76 to which this assumed name was performed for the printer 13 of relevance will be directed (step S207).

[0075] Drawing 10 is for explaining the flow of processing of the overlay management section at the time of receiving directions (updating directions) of the purport which updates the overlay in a printer to the newest thing. If there are updating directions of overlay from the print-data processing section 33, it will judge whether the overlay management section 32 is in the condition that updating directions are applied (step S401). An activity will be terminated if it is under application (step S402; Y) (end).

[0076] When updating directions are not applying [be / it], it judges whether print data other than print-data 61 under processing in (step S402; N) and the spool data storage section 27 (refer to drawing 3) exist (step S403). The information on the spool data storage section 27 is required and acquired, and, specifically, the search is performed. When such print data exist and (step S404; Y) and overlay are updated to the newest thing, it becomes impossible to apply separately overlay old and new between print data. Then, in order to manage a "condition" until processing of such print data is completed, a spool management table is created (step S405). And the display under updating directions application will newly be performed (step S406).

[0077] Drawing 11 expresses an example of a spool management table. The identifiers and those conditions of each print data are written down in the spool management table 91. For example, printing is completed about "print data 1" and it is in the condition of it being sent out to a printer 13 about "print data 2", and standing by the inside of printing, or printing with the airline printer 54 (drawing 1). In this case, it is displayed as "under printing." It is in the condition which is not sent out by the printer 13 in the case of "print data 5", i.e., the condition of the waiting for printing.

[0078] On the other hand, when only the print data 61 under processing in the spool data storage section 27 exist at step S404, processing for updating the overlay in (N) and a printer to the newest thing is performed (step S407).

[0079] Drawing 12 expresses concretely an update process of the overlay in the printer shown at step S407 of drawing 10. A host computer 11 acquires the overlay management table 24 first

shown in drawing 6 by this processing (step S501). And if it judges whether registration of overlay is shown in this overlay management table 24 (step S502) and there is registration (step S503;Y), the entry of the newest overlay will be extracted (step S504). In the case of drawing 6, if the overlay to which the "assumed name 5" about original "overlay name 1"81 was given is the newest, this entry will be extracted.

[0080] If the entry of the newest overlay of "an assumed name 5" is extracted, the overlay except [this] original "overlay name 1"81 being common will be eliminated from the inside of a printer 13 (step S505). In this example, each overlay of "the overlay name 1", "an assumed name 1", and "an assumed name 2" will be eliminated for the overlay name 83 from the printer 13 interior. Since the overlay which can store this in a printer 13 is finite, it is for arranging old overlay.

[0081] Thus, if the overlay management table 24 is arranged about one kind of overlay name 81, the newest overlay about this "overlay name 1"81 will be inputted from the overlay storing section 31 (step S506). And a judgment in agreement with the overlay to which it corresponds after the creation data of this overlay was arranged by the overlay management table 24 is performed (step S507). This is for checking whether the newest overlay is registered into the overlay management table 24.

[0082] If both the creation dates are not in agreement (step S508; N), the overlay which the printer 13 owns will not be the newest thing. Then, this overlay is deleted from a printer 13 (step S509). Moreover, the corresponding processing entry is deleted from the overlay management table 24 (step S510). This is the meaning to register [to transmit this to a printer 13 newly, when the overlay is next needed, and] into the overlay management table 24 newly.

[0083] If both the creation dates are in agreement at step S508, it will judge whether it is that to which the overlay after (Y) and its arrangement changed its name (step S511). In the above mentioned example, by "the overlay name 1", since the overlay name 81 is "an assumed name 5", as for both, the overlay name's 83 after modification does not correspond. In such a case, (step S512;Y), it changes into the thing which had the overlay name 83 after modification in a printer 13 specified (step S513). In this example, it will be changed into the same "overlay name 1" as the original overlay name 81 that the overlay name 83 after modification had turned into "an assumed name 5."

[0084] Then, the entry which progressed to step S510 and carried out current processing is deleted from the overlay management table 24. In addition, when both the overlay names 81 and 83 are in agreement at step S512, it is not necessary to perform such processing. Then, it will progress to step S510 immediately. Thus, processing is advanced, sequential deletion of the entry which processing ended is carried out, and processing will be completed when it will be in the condition that overlay is not registered into the overlay management table 24 (step S503; N) (end).

[0085] In case drawing 13 is updated by spool, it is for explaining the processing which updates the overlay in a printer to the newest thing. After the processing is completed by the printer 13 side about the print data spooled to the spool data storage section 27 by the side of a host computer 11, the identifier of the completion data set of printing showing printing having completed the host computer 11 is received (step S601). It judges whether a host computer 11 has effective updating directions of overlay (step S602). If invalid (step S603; N), processing will be terminated, without updating overlay to the newest thing (end).

[0086] On the other hand, if updating directions of overlay are effective (step S603;Y), the spool management table 91 (drawing 11) will be inputted (step S604). And it is judged whether the print data with which this table corresponds have registration ("finishing [printing]" in drawing 11) of the completion data set of printing (step S605). If there is nothing (step S606), an activity will be completed, without processing further (end). If it is (step S606;Y), "a printed display" will be performed to the print data (step S607).

[0087] Thus, if the display "under printing" is changed into "finishing [printing]" newly about one of the print data of the spool management table 91, this table will be searched and the judgment of whether the data set which has not completed printing exists will be performed (step S608). If it exists (step S609;Y), in this condition, the overlay in a printer cannot be updated to the newest thing yet. Then, processing is terminated also in this case (end).

[0088] On the other hand, if the data set which is not making printing complete in the spool

management table 91 is lost (step S609;Y), it will become possible to update overlay within a printer 13. Then, an update process of overlay is performed (step S610). This is the same processing as step S407 of drawing 10, and drawing 12 explained the detail. After an update process of overlay is completed, the spool management table 91 becomes unnecessary. Then, deletion of the spool management table 91 will be performed (step S611), and processing will be completed (end).

[0089] In addition, print data are stored in the spool data storage section 27 one after another. Therefore, the spool management table 91 is created one after another with storing of these print data, and these will be deleted by duty completion at step S611, respectively.

[0090] Although the example explained above did not explain especially a setup of whether to update overlay unconditionally, input means which a host computer 11 does not illustrate, such as a keyboard and a mouse, may perform such a setup, and it may be beforehand programmed by relation with a series of print data which process.

[0091] Moreover, although the creation date was used as data for management of the number of versions of a printing resource in the example, still more detailed hour entries, such as the date and time of creation, are used for the number management of versions. Moreover, naturally this invention can use other number information of versions that it is generally used like the serial number of for example, the number of versions, besides such a hour entry.

[0092]

[Effect of the Invention] The number management tool of versions which manages each number of versions of a printing resource to the print control unit which performs a transfer of print data or a printing resource to each printer according to invention according to claim 1 as explained above, Since the printing resource selection means which chooses the newest printing resource of the number of versions, and is made to transmit to a printer was made to provide, a print control unit can manage the number of versions about a printing resource, and a printer side can always use the newest printing resource by transmitting the newest thing to a printer.

[0093] When an assumed-name grant means to change the name into it whenever it updates a printing resource to the print control unit which performs a transfer of print data or a printing resource to each printer was made to provide and a printing resource was updated, an assumed name is attached and it was made to transmit to a printer in invention according to claim 2. For this reason, in a printer side, it is effective in the ability to distinguish and use these by matching a printing resource using this assumed name, even when using that from which the number of versions differs with the printing resource of the same class.

[0094] The managed table which manages the printing resource which exists in the print control unit which performs a transfer of print data or a printing resource to each printer in a printer in invention according to claim 3, and the information about the updating, A printing resource deletion means to make it eliminate except the newest thing among each printing resource in a printer using a managed table is made to provide, and it enabled it to arrange these printing resources when the sequential transfer of the printing resource with which the numbers of versions differ to a printer is carried out by the print control unit side.

[0095] A print-data storing means to store print data in the print control unit which performs a transfer of print data or a printing resource to each printer in invention according to claim 4, A printing resource storing means to store a printing resource, and a transfer means to transmit to a printer the printing resource which accompanies two or more print data and these which were stored in these storing means, A completion distinction means of printing processing to distinguish this when printing processing is completed about all the print data transmitted by this transfer means, When an updating timing setting means to make said printing resource update is made to provide when the completion distinction means of printing processing distinguishes completion of printing processing, and two or more print data are processed by one printer, These printing advance situations were supervised and arrangement of the printing resource with which the numbers of versions differ was enabled because it is made to update a printing resource when all of these processings are completed.

[Translation done.]

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TECHNICAL FIELD

[Industrial Application] This invention relates to the print system which was made to perform printing processing using the printing resource needed like a font or the pattern of overlay at the time of printing.

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PRIOR ART

[Description of the Prior Art] In case various kinds of printings by the printer are performed, printing resources, such as a font required for printing of not only text data but an alphabetic character etc. and a pattern (only henceforth overlay) of the overlay in the case of document printing, are needed. What is used frequently of the printing resources, for example, about the font of the Mincho typeface of a standard character size, the printer side holds for storage means, such as ROM (read only memory), is usual.

[0003] In the case of the print system by which a place prints a document, various kinds of overlay is needed, and, moreover, these are not fixed. Therefore, it is impossible to make these prepare for a printer side altogether in practice. Similarly, when printing using a special font or a special image, a printer side is not equipped with these printing resources in many cases.

[0004] So, in the former, when printing, for example using overlay, the technique of transmitting to a printer the overlay used for the printing in advance of a transfer of print data unconditionally was taken. However, since overlay was transmitted to whenever [that] at the printer when this technique was used, the load to a communication link increased and there was a problem that it could not print efficiently. Moreover, in a printer side, it will print with the application of the transmitted overlay unconditionally. Therefore, since the situation of applying to the print data before updating sent with the overlay near at hand after updating to the print data sent later occurred when printing processing was delayed, also when desired printing was not performed, it was.

[0005] Then, when a printer side requires overlay, he is trying for a print control unit side to transmit this by the proposal shown in JP,63-130362,A. The situation where the overlay which is not meant after updating by this will be applied to print data is avoidable.

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EFFECT OF THE INVENTION

[Effect of the Invention] The number management tool of versions which manages each number of versions of a printing resource to the print control unit which performs a transfer of print data or a printing resource to each printer according to invention according to claim 1 as explained above, Since the printing resource selection means which chooses the newest printing resource of the number of versions, and is made to transmit to a printer was made to provide, a print control unit can manage the number of versions about a printing resource, and a printer side can always use the newest printing resource by transmitting the newest thing to a printer.

[0093] When an assumed-name grant means to change the name into it whenever it updates a printing resource to the print control unit which performs a transfer of print data or a printing resource to each printer was made to provide and a printing resource was updated, an assumed name is attached and it was made to transmit to a printer in invention according to claim 2. For this reason, in a printer side, it is effective in the ability to distinguish and use these by matching a printing resource using this assumed name, even when using that from which the number of versions differs with the printing resource of the same class.

[0094] The managed table which manages the printing resource which exists in the print control unit which performs a transfer of print data or a printing resource to each printer in a printer in invention according to claim 3, and the information about the updating, A printing resource deletion means to make it eliminate except the newest thing among each printing resource in a printer using a managed table is made to provide, and it enabled it to arrange these printing resources when the sequential transfer of the printing resource with which the numbers of versions differ to a printer is carried out by the print control unit side.

[0095] A print-data storing means to store print data in the print control unit which performs a transfer of print data or a printing resource to each printer in invention according to claim 4, A printing resource storing means to store a printing resource, and a transfer means to transmit to a printer the printing resource which accompanies two or more print data and these which were stored in these storing means, A completion distinction means of printing processing to distinguish this when printing processing is completed about all the print data transmitted by this transfer means, When an updating timing setting means to make said printing resource update is made to provide when the completion distinction means of printing processing distinguishes completion of printing processing, and two or more print data are processed by one printer, These printing advance situations were supervised and arrangement of the printing resource with which the numbers of versions differ was enabled because it is made to update a printing resource when all of these processings are completed.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, when new print data are received according to this proposal, reclaim of the overlay as that in which overlay of the same class exists is not performed, but the situation where the overlay before updating to new print data after all will be applied is made generated.

[0007] Moreover, generally, once it stores print data in the spool data storage means which consists of a magnetic disk by the side of a printer etc., they are read, and they perform printing processing. The print data stored in this spool data storage means are not read in order of that storing, and are not necessarily processed. For example, the print data which print by the overlay before updating, and the print data which print by the overlay after updating may be processed together. In such a case, the case where the overlay applied to print data is unsuitable arises.

[0008] Then, the purpose of this invention is to offer the print system which enabled it to perform printing processing with the application of an always suitable printing resource by the printer side.

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MEANS

[Means for Solving the Problem] invention according to claim 1 — the transmission line of a (b) telecommunication cable etc., and (b) — it connecting through this transmission line and with the printer which prints using printing resources, such as overlay demanded as a resource at the time of print data and its printing processing A print-data storing means to store print data, and a printing resource storing means to store a printing resource, (Ha) The number management tool of versions which manages each number of versions of the printing resource stored in the printing resource storing means, A print system is made to possess the print control unit equipped with a transfer means to transmit a printing resource and print data to a printer, and the printing resource selection means which chooses the newest printing resource of the number of versions, and is made to transmit to said transfer means.

[0010] That is, a print control unit manages the number of versions about a printing resource, and the printer side enables it to always use the newest printing resource by transmitting the newest thing to a printer by invention according to claim 1.

[0011] It connects through this transmission line. invention according to claim 2 — the transmission line of a (b) telecommunication cable etc., and (b) — The printer which prints by specifying the name about a printing resource using printing resources, such as overlay demanded as a resource at the time of print data and its printing processing, A print-data storing means to store print data, and a printing resource storing means to store a printing resource, (Ha) A print system is made to possess the print control unit equipped with an assumed-name grant means to change the name whenever it updates the printing resource stored in the printing resource storing means, and a transfer means to transmit a printing resource and print data to a printer.

[0012] That is, change the identifier, whenever it updates a printing resource by the print control unit side, it is made to be made to send out to a printer side, and it is made to be made to perform the use by the printer side by invention according to claim 2, specifying the identifier of a printing resource. These can be distinguished and used even when two or more printing resources use by this that from which the number of versions differs with the printing resource of the same class.

[0013] invention according to claim 3 — the transmission line of a (b) telecommunication cable etc., and (b) — it connecting through this transmission line and with the printer which prints using printing resources, such as overlay demanded as a resource at the time of print data and its printing processing A print-data storing means to store print data, and a printing resource storing means to store a printing resource, (Ha) The managed table which manages the printing resource which exists in a printer, and the information about the updating, A print system is made to possess the print control unit equipped with a transfer means to transmit a printing resource and print data to a printer, and a printing resource deletion means to make it eliminate except the newest thing among each printing resource in a printer using a managed table.

[0014] That is, in invention according to claim 3, the managed table for managing the printing resource of each printer is made to prepare for a print control unit side, and when the printing resource from which the number of versions of the same class differs by the printer is used one after another, as an old thing is erased, management of a printing resource is realized.

[0015] invention according to claim 4 — the transmission line of a (b) telecommunication cable etc., and (b) — it connecting through this transmission line and with the printer which prints using

printing resources, such as overlay demanded as a resource at the time of print data and its printing processing. A print-data storing means to store print data, and a printing resource storing means to store a printing resource, (Ha) A transfer means to transmit to a printer the printing resource which accompanies two or more print data and these which were stored in these storing means, A completion distinction means of printing processing to distinguish this when printing processing is completed about all the print data transmitted by this transfer means, When the completion distinction means of printing processing distinguishes completion of printing processing, a print system is made to possess the print control unit equipped with an updating timing setting means to make said printing resource update.

[0016] That is, by invention according to claim 4, when two or more print data by one printer are processed, these printing advance situations are supervised and the printing resource with which the numbers of versions differ is arranged because it is made to update a printing resource when all of these processings are completed.

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EXAMPLE

[Example] This invention is explained to a detail per example below.

[0018] Drawing 1 expresses the functional configuration of the print system in one example of this invention. the 1st - the 131-13 Ns of the Nth printer by which this print system was connected with the host computer 11 as a print control unit through the telecommunication cable 12 from -- it is constituted.

[0019] CPU (central processing unit) 21 which performs the control, RAM (random access memory) 22 as working-level month memory, ROM (read only memory) 23 which stored the program and the fixed data for an equipment startup, the overlay management table 24 for overlay management, and the spool management table 25 for spool data control are connected to the host computer 11 through the buses 26, such as a data bus. Moreover, storage means and passive circuit elements, such as a magnetic disk which similarly is not illustrated through the input/output port which is not illustrated, are connected to the bus 26.

[0020] CPU 21 realizes various kinds of functions by reading the program stored in this storage means on RAM 22, and performing it. As such a function part, it is [the spool data-processing section 28 which connected the spool data storage section 27, the overlay management section 32 which connected the overlay storing section 31, the print-data processing section 33 which performs processing of print data, and] 131-13 Ns of each printer. The data I/O section 34 which performs input/output control of the data to receive can be mentioned.

[0021] Since it is identitas substantially, the Nth configuration of the 1st connected to the telecommunication cable 12 - a printer is the 1st printer 131 here. A configuration is explained concretely. The 1st printer 131 It has CPU 41. Storage means and passive circuit elements, such as a magnetic disk which CPU 41 similarly does not illustrate through RAM 43 as working-level month memory, ROM 44 which stored the program and the fixed data for equipment starting, the page data memory 45 which stores page data, the overlay memory 46 which stores overlay, and the input/output port which is not illustrated through the buses 42, such as a data bus, are connected.

[0022] CPU 41 realizes various kinds of functions by reading the program stored in this storage means on RAM 43, and performing it. As such a function part, the overlay management section 49 which connected the overlay storing section 48, the image generation section 51 which performs generation of an image, the printing page data generation section 52 which generates the data of a printing page, and the data I/O section 53 which performs input/output control of the data to a host computer 11 can be mentioned. Moreover, the above mentioned input/output port is minded [42] and it is an airline printer 541. It connects. Airline printer 541 For example, it is constituted by the laser beam printer and printing of a document etc. will be performed.

[0023] Next, each part in such a print system is explained.

[0024] Explanation inside a host computer [0025] (a) Spool data-processing section [0026] The spool data-processing section 28 processes following (1) - (3). First, print data are acquired from (1) spool data storage section 27, and processing which delivers this to the print-data processing section 33 is performed.

[0027] Drawing 2 expresses the configuration of the spool data stored in the spool data storage section. Sequential storing of two or more print data 611, 612, and is carried out at the spool

data storage section 27 which consists of magnetic disks etc. These print data 611, 612, and are read one by one, and are transmitted to an airline printer 54.

[0028] Moreover, the spool data-processing section 28 deletes reception and the corresponding print data for the notice of the completion of printing from the spool data storage section 27 from (2) data I/O section 34. At this time, the identification information about the print data which printing completed to the overlay management section 32 is notified. Furthermore, if the spool data-processing section 28 has the inquiry about the situation of (3) overlay management sections 32 to the spool data storage section 27, it will notify all the identifiers of the print data 611 which exist in this, 612, and The spool data-processing section 28 will repeat processing of the above (1) - (3) until all of the print data 611 in the spool data storage section 27, 612; and are lost.

[0029] (b) Print-data processing section [0030] The print-data processing section 33 processes following (1) - (3). First, print data are transmitted to reception from the spool data-processing section 28, and the identifier is transmitted to the printer (here, it explains as the 1st printer 131.) of a printing place from the data I/O section 34.

[0031] Drawing 3 expresses the configuration of print data. Print data 61 consist of the renewal directions column 62 of overlay which directs it, an overlay application directions column 63 which directs what kind of overlay is applied to print data, a text data printing directions column 641 which stores text data in order of unit quantity every [predetermined], and 642, when overlay needs to be transposed to the newest thing. The creation data applied to printing is entered in the overlay application directions column 63 as the identifier of the overlay applied here.

[0032] Therefore, when overlay is updated one after another, the class and the number of versions of overlay which are applied can be specified by specifying the date by which the identifier of the overlay applied to print data and the overlay to apply were created or updated. Of course, if the purport which updates overlay is directed in the renewal directions column 62 of overlay, the newest overlay can be applied to print data, without being related to this.

[0033] The print-data processing section 33 directs renewal of overlay to the overlay management section 32, when updating directions of the purport replaced with the newest overlay are performed in the renewal directions column 62 (refer to drawing 3) of overlay of the (2) print data 61. Moreover, when there is description which specifies overlay as the overlay application directions column 63 of the (3) print data 61, these overlay name and creation data are notified to the overlay management section 32.

[0034] (c) Data I/O section [0035] The data I/O section 34 processes following (1) - (5). First, reception and the 1st printer 131 aiming at this It transmits. [print data / 61 (drawing 3) / (1) print-data processing section 33 to] Moreover, overlay is received from (2) overlay management sections 32, and it is the 1st printer 131 about this. It transmits.

[0036] Drawing 4 expresses the configuration of overlay. overlay 71 — the overlay name 72, creation data 73, and a version (version; version) — it consists of overlay objects 76 showing information like a bibliography, such as 74 and an implementer 75, and the image of overlay.

[0037] The data I/O section 34 is the 1st printer 131 about this again, when printing directions of overlay are received from (3) overlay management sections 32. It transmits. the 131-13 Ns of and the (4) 1st-Nth printer from — if the identifier of the print data which ended printing is received, this will be notified to the spool data-processing section 28. Furthermore, the data I/O section 34 transmits it to the printer 13, when there are directions of the purport which changes the identifier of the overlay stored in the overlay storing section 48 in the predetermined printer 13 from (5) overlay management sections 32. Moreover, when there are directions of the purport which eliminates the specific overlay in the predetermined printer 13 from the overlay management section 32, the directions are transmitted to the printer 13.

[0038] (d) Overlay management section [0039] The overlay management section 32 performs processing which is different the case of the employment gestalt which updates (1) overlay unconditionally, and in the case of the employment gestalt which updates overlay by (2) criteria specification. These are explained in detail later.

[0040] Explanation inside a printer [0041] (e) Data I/O section [0042] The data I/O section 53 processes (1) - (4). First, the print data 61 shown in (1) drawing 3 are received from a host computer 11, and this is transmitted to the printing page data generation section 52. Moreover, the

printing directions about (2) overlay are received from a host computer 11, and it transmits to the overlay management section 49. Furthermore, if overlay is received from the (3) host computer 11, this will be transmitted to the overlay management section 49. Moreover, if the (4) airline printer 54 terminates printing and print-data completion information is outputted, this will be received and it will transmit to a host computer 11 side.

[0043] (f) Printing page data generation section [0044] First, the printing page data generation section 52 adds directions of the purport which prints the overlay generated by the image generation section 51 to the page information for printing directions of the corresponding page, when (1) overlay management section 49 directs printing of overlay. Moreover, the print data received in (2) data I/O section 53 are divided per page, and it transmits to the page data memory 45.

[0045] (g) Overlay management section [0046] The overlay management section 49 processes following (1) - (4) in response to directions from the data I/O section 53. When there are directions of the purport which prints (1) overlay first, the corresponding overlay is transmitted to the image generation section 51, and the image of overlay is made to generate. Moreover, the identification information is transmitted to the printing page data generation section 52.

[0047] Moreover, the overlay is stored in the overlay storing section 48 if (2) overlay is transmitted to the image generation section 51. Furthermore, the change is made when directions of the purport which changes the identifier of overlay are received. Moreover, when directions of the purport which eliminates (4) overlay are received, the corresponding overlay is eliminated from the overlay storing section 48.

[0048] (h) Image generation section [0049] The image generation section 51 performs processing of the following (1) and (2). That is, when overlay has been transmitted from (1) overlay management section 49, the identification information corresponding to the overlay and this is recorded on the overlay memory 46. Moreover, a printing page is changed into reception from (2) page data memory 45, this is changed into a raster image, and it outputs to an airline printer 54. And the data of the printing page which corresponds from the page data memory 45 whenever sending out for 1 page is performed are eliminated. About the printing page printing of overlay is instructed to be, in case a raster image is sent out to an airline printer 54, the overlay whose identification information corresponds will be changed into a raster image, and it will output to an airline printer 54 at coincidence.

[0050] (i) Airline printer [0051] In an airline printer 54, from the image generation section 51, it receives and a raster image is outputted to the print sheet which is not illustrated. When the last page about print data is printed out, the identifier of the print data which printing ended is notified to the data I/O section 53.

[0052] Next, explanation about the part which should serve as the description is given to a degree about the print system explained above.

[0053] Processing according to employment gestalt of the overlay management section [0054] The overlay management section 32 by the side of a host computer 11 performs processing which is different the case of the employment gestalt which updates (1) overlay unconditionally as explained previously, and in the case of the employment gestalt which updates overlay by (2) criteria specification.

[0055] [(in the case of the employment gestalt which updates overlay unconditionally) 0056] In the case of this employment gestalt, the overlay set as the overlay stored in the overlay storing section 31 in a host computer 11 and the printing object in a printer 13 is in agreement, and printing is always performed within a printer 13 using the newest overlay.

[0057] Drawing 5 expresses the flow of processing of the overlay management section in the employment gestalt which updates overlay unconditionally. If the print-data processing section 33 performs printing directions of overlay, refer to the overlay management table 24 for the overlay management section 32 (step S101). And it judges whether the specified overlay is registered into this (step S102).

[0058] Drawing 6 expresses an example of the contents of the overlay management table. The overlay name 81, original creation data 82, and the changed original overlay name 83 are entered in the overlay management table 24 for every overlay. For example, it supposes that the original

overlay name 81 is "the overlay name 1", and supposing the creation data is "creation data 1", an identifier is not changed yet but, as for this, the "overlay name 1" itself is the overlay name 83. Then, updating should be performed under the date of "creation data 2." In this case, it is registered as an overlay name 83 by which "the assumed name 1" was changed about the overlay after [that] being changed. Furthermore, if updating is performed under the date of "creation data 3", the overlay name 83 will be further changed into "an assumed name 2" about the changed overlay.

[0059] In the example shown in drawing 6, as for this overlay of "the overlay name 1", updating is further performed under the date of "creation data 3", and the original overlay name 81 turns into the overlay name 83 by which "the assumed name 5" was then changed. About overlay of "the overlay name 2", it will be created for the first time by "creation data 4", will be updated by the creation data shown by "creation data 6", and will be changed into "an assumed name 6."

[0060] The example of data actually written down in the overlay management table 24 is expressed with this drawing 6 to the lower three column 64. that overlay of the original overlay name 81 "KANRI" was created in this example on August 13, 92, this was updated on August 20, 92, and the overlay name 83 was set to "\$00009", and this — further — it is meant as data that it was updated on September 10, 92 and the overlay name 83 was set to "\$00010."

[0061] It returns to drawing 5 and explanation is continued. When the corresponding overlay is registered into the overlay management table 24, (step S103; Y) and its overlay 71 (drawing 4) are read from the overlay storing section 31, and the creation data 73 is compared with the creation data 82 in the overlay management table 24 of drawing 6 (step S105). Consequently, when both are not in agreement (i.e., when the creation data 73 of the overlay 71 read from the overlay storing section 31 is newer) (step S106; N), that updated overlay 71 is transmitted to a printer 13 through the data I/O section 34 (step S107). And the creation data of the overlay management table 24 is updated (step S108).

[0062] Drawing 7 expresses the important section of an overlay management table. The overlay name 83 the "overlay name 1" of the creation data 82 expressed with the "creation data 1" of the overlay management table 24 is updated by the creation data 82 expressed with "the creation data 2", and the overlay name 83 is also changed into "the overlay name 2."

[0063] Thus, when renewal of the creation data of the overlay management table 24 is performed, printing which used the overlay object 76 in this overlay 71 for the printer 13 of relevance is directed (step S109). That is, the newest overlay object 76 which a host computer 11 owns will be transmitted to a printer 13 in this case, and printing will be performed using this.

[0064] When the overlay 71 as which printing was specified at step S103 is not registered into the overlay management table 24 on the other hand, the overlay 71 is transmitted to a printer 13 through (N) and the data I/O section 34 (step S110). In this case, since that overlay 71 is new, this is newly registered into the overlay management table 24 (step S111). And printing which used the overlay object 76 of this overlay 71 for the printer 13 of relevance will be directed (step S109).

[0065] Moreover, when the creation data 73 of the overlay 71 read from the overlay storing section 31 at step S106 is in agreement with the creation data 82 of the overlay management table 24, it will be said that the overlay 71 which (Y) and a printer 13 own is the newest thing. Then, a transfer of overlay 71 will not be performed in this case, but printing which used the overlay object 76 in this overlay 71 will be directed immediately (step S109).

[0066] [(in the case of the employment gestalt which updates overlay by criteria specification)

0067] Next, the case where assignment of creation data is performed to the print data 61 shown in drawing 3 is explained. In this case, overlay of the date by which both new overlay and old overlay were kept and specified as the printer 13 interior will be used for printing.

[0068] Drawing 8 expresses the flow of processing of the overlay management section at the time of receiving printing directions of overlay from the print-data processing section. If the print-data processing section 33 performs printing directions of overlay, refer to the overlay management table 24 for the overlay management section 32 (step S201). And it judges whether the specified overlay is registered into this (step S202), and if not registered (step S203; N), processing at the time of registration nothing is performed (step S204).

[0069] Drawing 9 expresses the contents of the processing at the time of registration nothing [in

step S204 of drawing 8]. In this case, the overlay 71 shown in drawing 4 is inputted (step S301), and distinction of whether to be within the limits of the creation date when that creation data 73 was specified with print data 61 is performed (step S302). For example, the assignment "July 1, 92 to July 15, 92" is performed as creation data assignment of the overlay application directions column 63 of print data, and when there is nothing that corresponds to this as creation data 73, the same processing as the case where (step S303; N) and overlay 71 are absent is performed (step S304). Step S110 and step S111 of drawing 5 explained this. That is, since there is no overlay 71 specified in this case, that overlay 71 stored in the overlay storing section 31 is transmitted to a printer 13, and it is made to use it for printing.

[0070] On the other hand, when the thing of the date of creation data assignment of the overlay application directions column 63 of print data is registered into the overlay management table 24, (step S303; Y) and its specified overlay 71 are transmitted to a printer 13 through the data I/O section 34 (step S305). Next, this is registered into the overlay management table 24 with the creation data (step S306). And printing which used the overlay object 76 in this overlay 71 for the printer 13 of relevance will be directed (step S307). That is, printing will be performed in this case using the overlay 71 of the number of versions specified with print data.

[0071] It returns to drawing 8 and explanation is continued. When judged with the specified overlay being registered into the overlay management table 24, retrieval of whether the thing of the creation date specified with print data 61 by the same overlay 71 within the limits exists is performed to (step S203; Y) and a degree (step S205). If a thing within the limits does not exist (step S206; N), since the overlay object with the same origin itself exists, the overlay management section 32 will be directed to the printer 13 of relevance by printing which used the overlay object (step S207).

[0072] On the other hand, when the overlay 71 of the creation date specified with print data 61 within the limits is registered into the overlay management table 24, (step S206; Y) and its overlay are inputted from the overlay storing section 31 (step S208). And it judges whether the creation data 73 of the overlay 71 is within the limits of assignment (step S209), otherwise, (step S210; N) overlay 71 performs processing at the time of an absence (step S211). This is the same as that of processing of step S304.

[0073] If the creation data 73 of the overlay 71 is within the limits of assignment (step S210; Y), the assumed name corresponding to the overlay 71 will be generated (step S212). This is the overlay name 83 after modification explained by drawing 6 . If it generates with the serial number as shown in "\$00009" shown in drawing 6 , and "\$00010", the old and new exception of an assumed name will be intelligible, and it will not have a possibility that a browsing name may overlap.

[0074] The overlay management section 32 makes the overlay 71 which changed its name transmit to the printer 13 of relevance from the data I/O section 34 (step S213). Then, this is newly registered into the overlay management table 24 with creation data (step S214). At this time, the assumed name of registering as an overlay name 83 after modification is natural. Printing which used the overlay object 76 to which this assumed name was performed for the printer 13 of relevance will be directed (step S207).

[0075] Drawing 10 is for explaining the flow of processing of the overlay management section at the time of receiving directions (updating directions) of the purport which updates the overlay in a printer to the newest thing. If there are updating directions of overlay from the print-data processing section 33, it will judge whether the overlay management section 32 is in the condition that updating directions are applied (step S401). An activity will be terminated if it is under application (step S402; Y) (end).

[0076] When updating directions are not applying [be / it], it judges whether print data other than print-data 61 under processing in (step S402; N) and the spool data storage section 27 (refer to drawing 3) exist (step S403). The information on the spool data storage section 27 is required and acquired, and, specifically, the search is performed. When such print data exist and (step S404; Y) and overlay are updated to the newest thing, it becomes impossible to apply separately overlay old and new between print data. Then, in order to manage a "condition" until processing of such print data is completed, a spool management table is created (step S405). And the display under updating directions application will newly be performed (step S406).

[0077] Drawing 11 expresses an example of a spool management table. The identifiers and those conditions of each print data are written down in the spool management table 91. For example, printing is completed about "print data 1" and it is in the condition of it being sent out to a printer 13 about "print data 2", and standing by the inside of printing, or printing with the airline printer 54 (drawing 1). In this case, it is displayed as "under printing." It is in the condition which is not sent out by the printer 13 in the case of "print data 5", i.e., the condition of the waiting for printing.

[0078] On the other hand, when only the print data 61 under processing in the spool data storage section 27 exist at step S404, processing for updating the overlay in (N) and a printer to the newest thing is performed (step S407).

[0079] Drawing 12 expresses concretely an update process of the overlay in the printer shown at step S407 of drawing 10 . A host computer 11 acquires the overlay management table 24 first shown in drawing 6 by this processing (step S501). And if it judges whether registration of overlay is shown in this overlay management table 24 (step S502) and there is registration (step S503;Y), the entry of the newest overlay will be extracted (step S504). In the case of drawing 6 , if the overlay to which the "assumed name 5" about original "overlay name 1"81 was given is the newest, this entry will be extracted.

[0080] If the entry of the newest overlay of "an assumed name 5" is extracted, the overlay except [this] original "overlay name 1"81 being common will be eliminated from the inside of a printer 13 (step S505). In this example, each overlay of "the overlay name 1", "an assumed name 1", and "an assumed name 2" will be eliminated for the overlay name 83 from the printer 13 interior. Since the overlay which can store this in a printer 13 is finite, it is for arranging old overlay.

[0081] Thus, if the overlay management table 24 is arranged about one kind of overlay name 81, the newest overlay about this "overlay name 1"81 will be inputted from the overlay storing section 31 (step S506). And a judgment in agreement with the overlay to which it corresponds after the creation data of this overlay was arranged by the overlay management table 24 is performed (step S507). This is for checking whether the newest overlay is registered into the overlay management table 24.

[0082] If both the creation dates are not in agreement (step S508; N), the overlay which the printer 13 owns will not be the newest thing. Then, this overlay is deleted from a printer 13 (step S509). Moreover, the corresponding processing entry is deleted from the overlay management table 24 (step S510). This is the meaning to register [to transmit this to a printer 13 newly, when the overlay is next needed, and] into the overlay management table 24 newly.

[0083] If both the creation dates are in agreement at step S508, it will judge whether it is that to which the overlay after (Y) and its arrangement changed its name (step S511). In the above mentioned example, by "the overlay name 1", since the overlay name 81 is "an assumed name 5", as for both, the overlay name's 83 after modification does not correspond. In such a case, (step S512;Y), it changes into the thing which had the overlay name 83 after modification in a printer 13 specified (step S513). In this example, it will be changed into the same "overlay name 1" as the original overlay name 81 that the overlay name 83 after modification had turned into "an assumed name 5."

[0084] Then, the entry which progressed to step S510 and carried out current processing is deleted from the overlay management table 24. In addition, when both the overlay names 81 and 83 are in agreement at step S512, it is not necessary to perform such processing. Then, it will progress to step S510 immediately. Thus, processing is advanced, sequential deletion of the entry which processing ended is carried out, and processing will be completed when it will be in the condition that overlay is not registered into the overlay management table 24 (step S503; N) (end).

[0085] In case drawing 13 is updated by spool, it is for explaining the processing which updates the overlay in a printer to the newest thing. After the processing is completed by the printer 13 side about the print data spooled to the spool data storage section 27 by the side of a host computer 11, the identifier of the completion data set of printing showing printing having completed the host computer 11 is received (step S601). It judges whether a host computer 11 has effective updating directions of overlay (step S602). If invalid (step S603; N), processing will be terminated, without updating overlay to the newest thing (end).

[0086] On the other hand, if updating directions of overlay are effective (step S603;Y), the spool

management table 91 (drawing 11) will be inputted (step S604). And it is judged whether the print data with which this table corresponds have registration ("finishing [printing]" in drawing 11) of the completion data set of printing (step S605). If there is nothing (step S606), an activity will be completed, without processing further (end). If it is (step S606;Y), "a printed display" will be performed to the print data (step S607).

[0087] Thus, if the display "under printing" is changed into "finishing [printing]" newly about one of the print data of the spool management table 91, this table will be searched and the judgment of whether the data set which has not completed printing exists will be performed (step S608). If it exists (step S609;Y), in this condition, the overlay in a printer cannot be updated to the newest thing yet. Then, processing is terminated also in this case (end).

[0088] On the other hand, if the data set which is not making printing complete in the spool management table 91 is lost (step S609;Y), it will become possible to update overlay within a printer 13. Then, an update process of overlay is performed (step S610). This is the same processing as step S407 of drawing 10 , and drawing 12 explained the detail. After an update process of overlay is completed, the spool management table 91 becomes unnecessary. Then, deletion of the spool management table 91 will be performed (step S611), and processing will be completed (end).

[0089] In addition, print data are stored in the spool data storage section 27 one after another. Therefore, the spool management table 91 is created one after another with storing of these print data, and these will be deleted by duty completion at step S611, respectively.

[0090] Although the example explained above did not explain especially a setup of whether to update overlay unconditionally, input means which a host computer 11 does not illustrate, such as a keyboard and a mouse, may perform such a setup, and it may be beforehand programmed by relation with a series of print data which process.

[0091] Moreover, although the creation date was used as data for management of the number of versions of a printing resource in the example, still more detailed hour entries, such as the date and time of creation, are used for the number management of versions. Moreover, naturally this invention can use other number information of versions that it is generally used like the serial number of for example, the number of versions, besides such a hour entry.

[Translation done.]

* NOTICES *

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is a block diagram showing the functional configuration of the print system in one example of this invention.

[Drawing 2] It is an explanatory view showing the configuration of the spool data stored in the spool data storage section.

[Drawing 3] It is an explanatory view showing the configuration of print data.

[Drawing 4] It is an explanatory view showing the configuration of overlay.

[Drawing 5] It is a flow chart showing the flow of processing of the overlay management section in the employment gestalt which updates overlay unconditionally.

[Drawing 6] It is an explanatory view showing an example of the contents of the overlay management table.

[Drawing 7] It is an explanatory view showing the important section of an overlay management table.

[Drawing 8] It is the flow chart which processing of the overlay management section at the time of receiving printing directions of overlay from the print-data processing section expressed.

[Drawing 9] It is a flow chart showing the contents of the processing at the time of registration nothing [in step S204 of drawing 8].

[Drawing 10] It is the flow chart showing the situation of processing at the time of receiving updating directions of the overlay in a printer.

[Drawing 11] It is an explanatory view showing an example of a spool management table.

[Drawing 12] It is the flow chart which expressed concretely the update process of the overlay in the printer shown at step S407 of drawing 10 .

[Drawing 13] It is a flow chart showing the processing which updates the overlay in a printer to the newest thing.

[Description of Notations]

11 — A host computer, 12 — A telecommunication cable and 131-13 Ns — [— RAM, 24 / — 25 An overlay management table 91 / — A spool management table, 27 / — The spool data storage section 28 / — 31 The spool data-processing section, 48 / — 32 The overlay storing section, 49 / — The overlay management section, 33 / — 34 The print-data processing section, 53 / — The data I/O section 54 / — An airline printer, 61 / — Print data, 71 / — Overlay] 21 A printer, 41 — 22 CPU, 43

[Translation done.]

* NOTICES *

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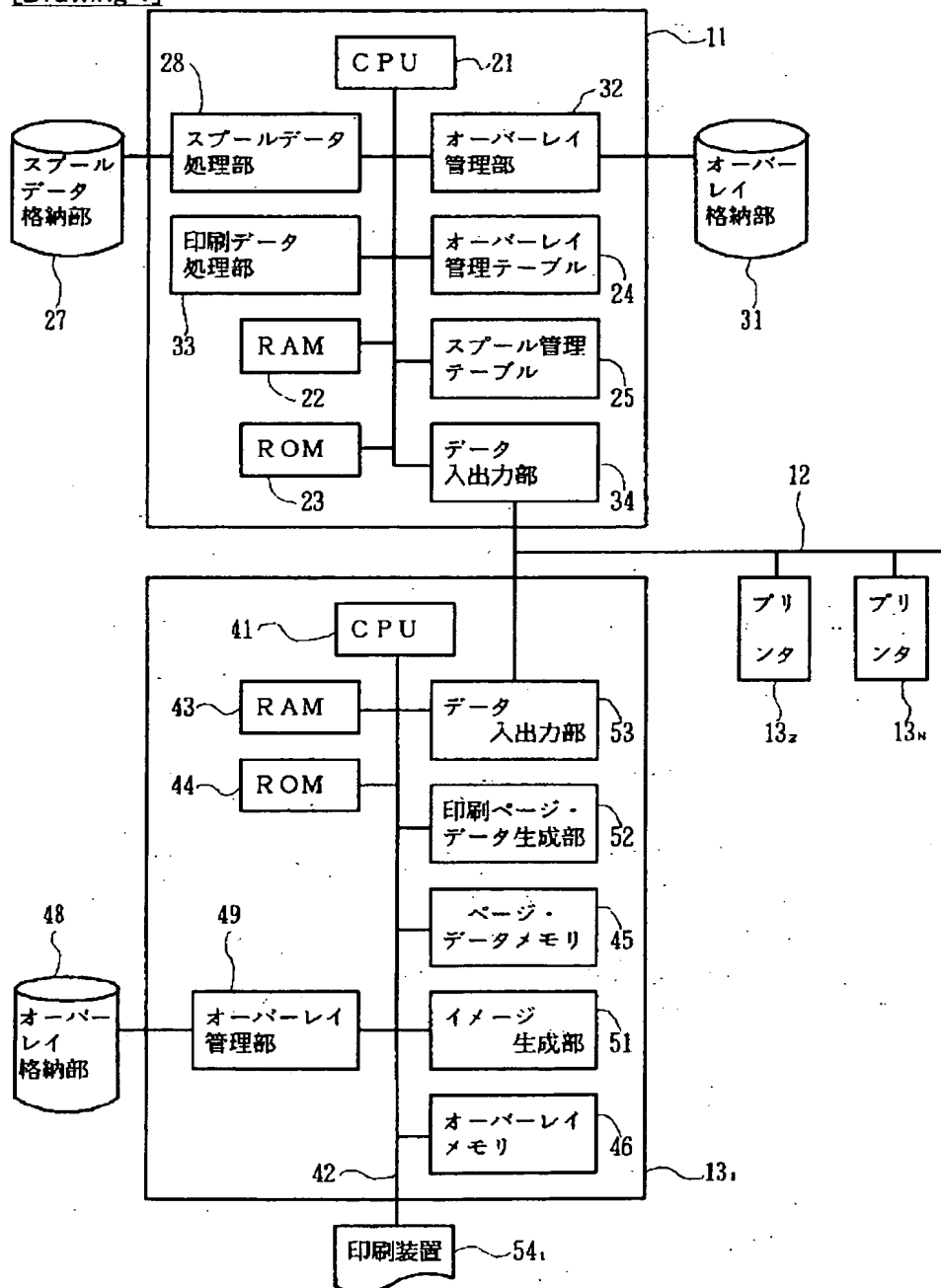
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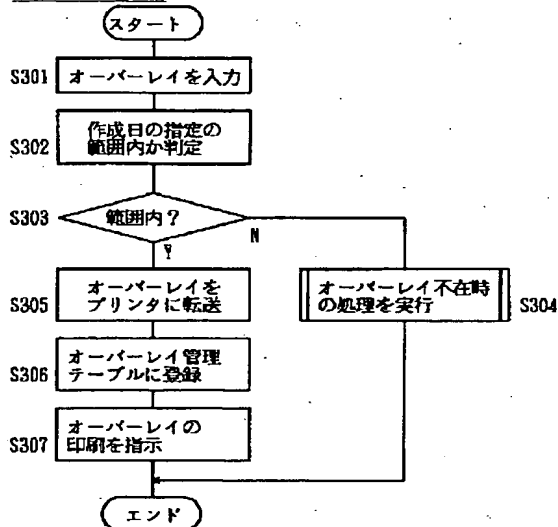
DRAWINGS

[Drawing 1]

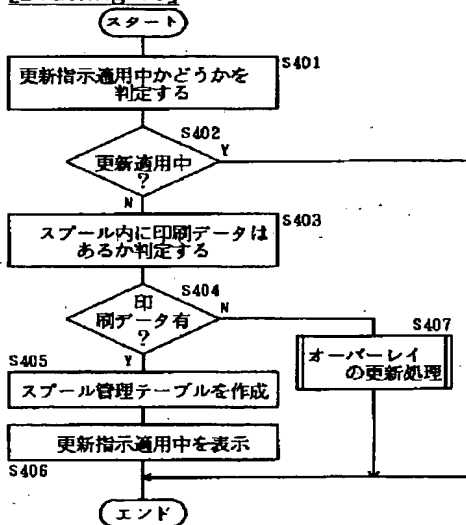


83 "オーバーレイ名 1"	24 82 "作成日付 1"
"オーバーレイ名 2"	"作成日付 2"

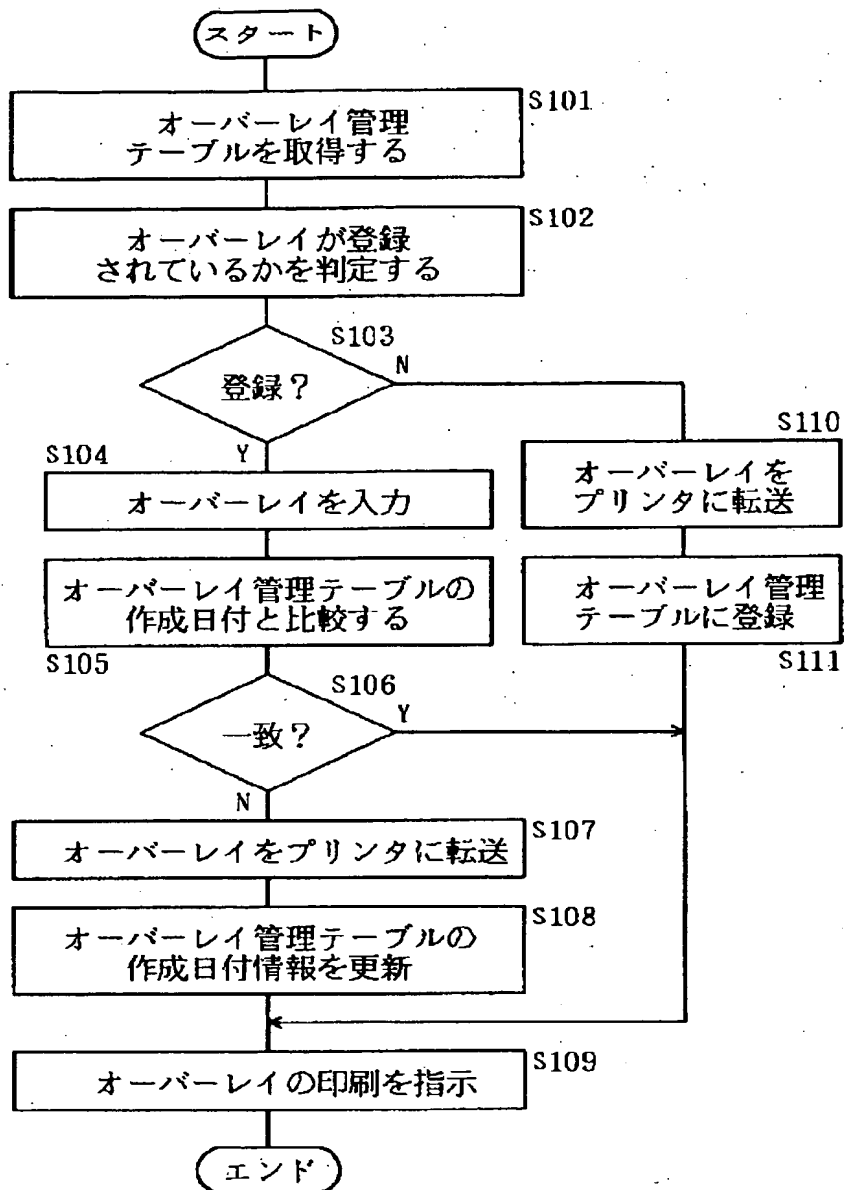
[Drawing 9]



[Drawing 10]



[Drawing 5]

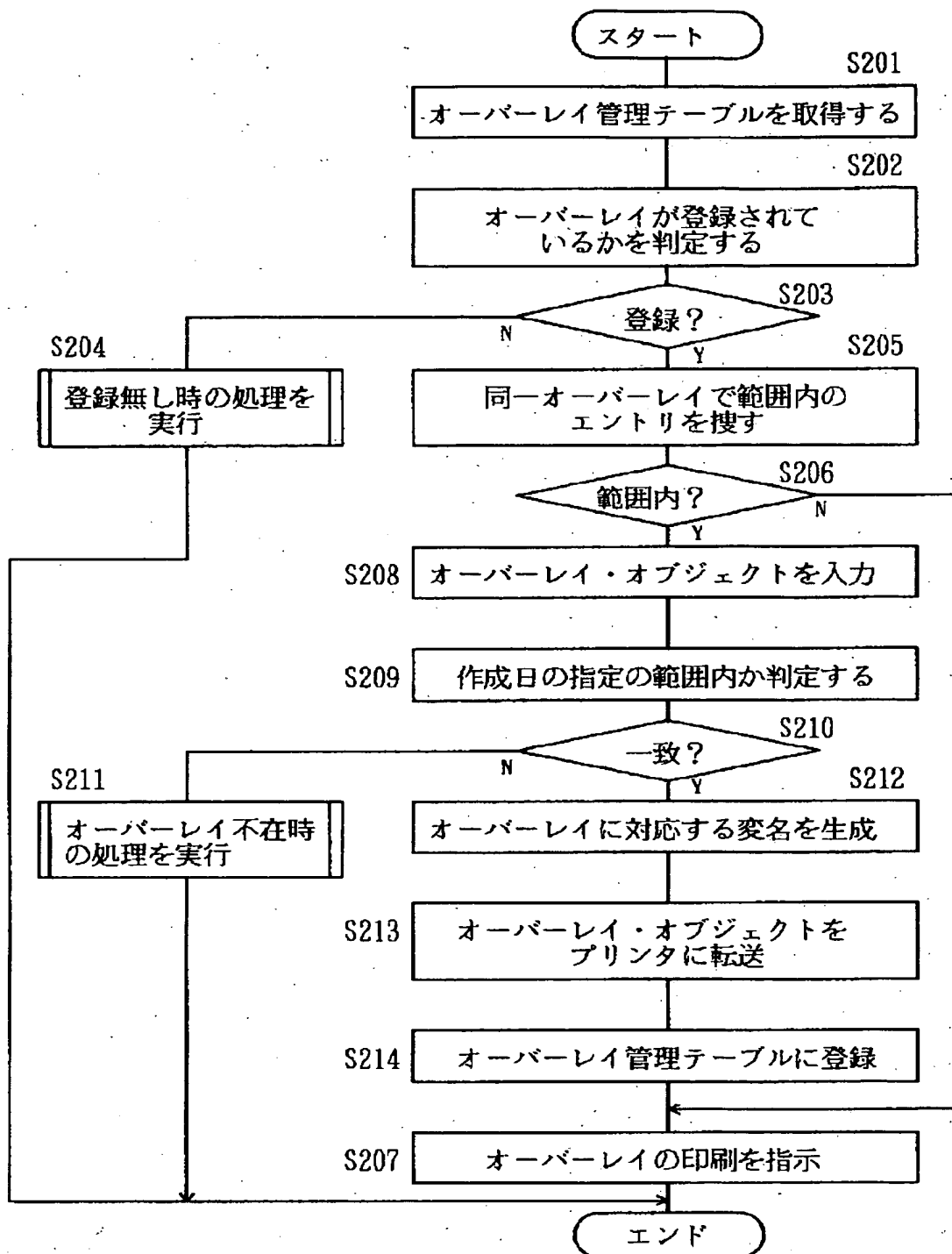


[Drawing 11]

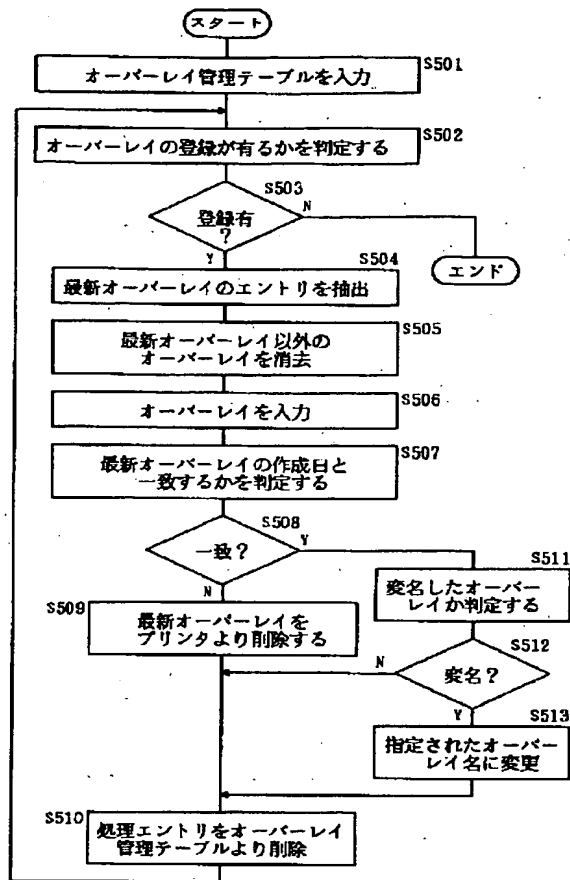
91

"印刷データ 1"	印刷済み
"印刷データ 2"	印刷中
"印刷データ 3"	印刷中
"印刷データ 3"	印刷待ち
"印刷データ 4"	印刷済み
"印刷データ 5"	印刷待ち

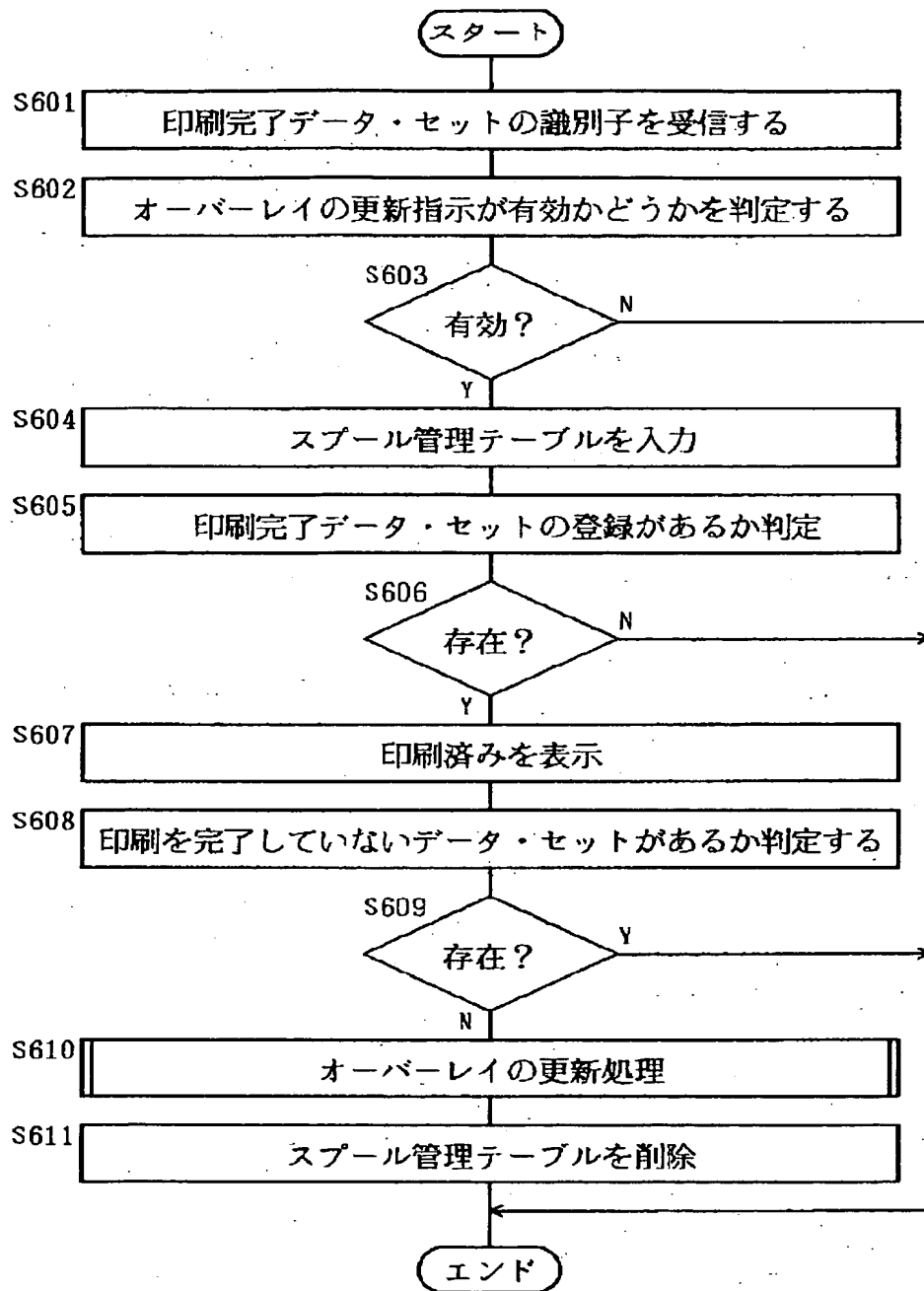
[Drawing 8]



[Drawing 12]



[Drawing 13]



[Translation done.]

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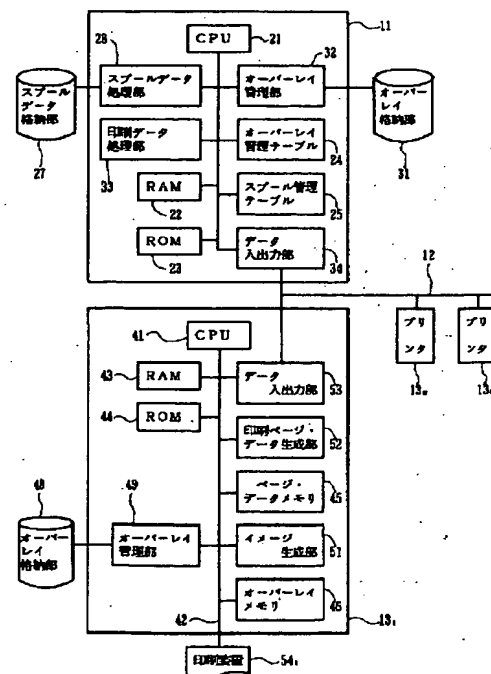
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(54)【発明の名称】 プリントシステム

(57)【要約】

【目的】 常に適切な印刷資源を適用してプリンタ側で印刷処理を行えるようにした。

【構成】 ホストコンピュータ11側では、オーバーレイやフォント等のように印刷に必要とされる資源に日付等の情報を付加して版数管理を行う。これにより、各プリンタ13₁～13_N最新の印刷資源を送出することができる他、同一種類の印刷資源でも更新が行われるたびに名称を変更させることによって、印刷の際にこれらの印刷資源が間違っ適用される事態の発生を防止する。



【特許請求の範囲】

【請求項1】 伝送路と、

この伝送路を介して接続され、印刷データおよびその印刷処理時に資源として要求されるオーバーレイ等の印刷資源を用いて印刷を行うプリンタと、
印刷データを格納する印刷データ格納手段と、印刷資源を格納する印刷資源格納手段と、印刷資源格納手段に格納された印刷資源のそれぞれの版数を管理する版数管理手段と、印刷資源ならびに印刷データをプリンタに転送する転送手段と、版数の最も新しい印刷資源を選択し前記転送手段に転送させる印刷資源選択手段とを備えた印刷制御装置とを具備することを特徴とするプリントシステム。

【請求項2】 伝送路と、

この伝送路を介して接続され、印刷データおよびその印刷処理時に資源として要求されるオーバーレイ等の印刷資源を用い、印刷資源についてはその名称を指定して印刷を行うプリンタと、

印刷データを格納する印刷データ格納手段と、印刷資源を格納する印刷資源格納手段と、印刷資源格納手段に格納された印刷資源を更新するたびにその名称を変える変名付与手段と、印刷資源ならびに印刷データをプリンタに転送する転送手段とを備えた印刷制御装置とを具備することを特徴とするプリントシステム。

【請求項3】 伝送路と、

この伝送路を介して接続され、印刷データおよびその印刷処理時に資源として要求されるオーバーレイ等の印刷資源を用いて印刷を行うプリンタと、

印刷データを格納する印刷データ格納手段と、印刷資源を格納する印刷資源格納手段と、プリンタ内に存在する印刷資源およびその更新に関する情報を管理する管理テーブルと、印刷資源ならびに印刷データをプリンタに転送する転送手段と、前記管理テーブルを用いてプリンタ内の各印刷資源のうち最新のものを以外を消去させる印刷資源削除手段とを備えた印刷制御装置とを具備することを特徴とするプリントシステム。

【請求項4】 伝送路と、

この伝送路を介して接続され、印刷データおよびその印刷処理時に資源として要求されるオーバーレイ等の印刷資源を用いて印刷を行うプリンタと、

印刷データを格納する印刷データ格納手段と、印刷資源を格納する印刷資源格納手段と、これらの格納手段に格納された複数の印刷データならびにこれらに付随する印刷資源をプリンタに転送する転送手段と、この転送手段によって転送されたすべての印刷データについて印刷処理が完了したときこれを判別する印刷処理完了判別手段と、印刷処理完了判別手段が印刷処理の完了を判別したとき前記印刷資源の更新を行わせる更新タイミング設定手段とを備えた印刷制御装置とを具備することを特徴とするプリントシステム。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、フォントやオーバーレイのパターンのように印刷時に必要とされる印刷資源を用いて印刷処理を行うようにしたプリントシステムに関する。

【0002】

【従来の技術】プリンタで各種の印刷を行う際には、テキスト・データだけでなく、文字等の印刷に必要なフォントや帳票印刷の際のオーバーレイのパターン（以下単にオーバーレイという。）等の印刷資源が必要とされる。印刷資源のうちの頻繁に使用するもの、例えば標準的な文字サイズの明朝体のフォントについてはプリンタ側がROM（リード・オンリ・メモリ）等の記憶手段に保有しているのが通常である。

【0003】ところが、例えば帳票の印刷を行うプリントシステムの場合には、各種のオーバーレイを必要とし、しかもこれらが固定的なものではない。したがって、これらをプリンタ側にすべて用意させることは實際上、不可能である。同様に、特殊なフォントや特別のイメージを用いて印刷を行う場合にも、これらの印刷資源がプリンタ側に備えられていないことが多い。

【0004】そこで従来では、例えばオーバーレイを使用して印刷を行うような場合、印刷データの転送に先立ってその印刷に使用されるオーバーレイを無条件でプリンタに転送する手法が採られていた。ところが、この手法を用いるとオーバーレイをそのたびにプリンタに転送するので、通信に対する負荷が増大し、印刷を効率的に行うことができないといった問題があった。また、プリンタ側では転送されてきたオーバーレイを無条件に適用して印刷を行うことになる。したがって、印刷処理が遅延したような場合には、後から送られてきた印刷データに対する更新後のオーバーレイを前に送られてきた更新前の印刷データに適用するといった事態が発生することもあり、所望の印刷が行われなかった場合もあった。

【0005】そこで、特開昭63-130362号公報に示された提案では、プリンタ側がオーバーレイを要求したときに印刷制御装置側がこれを転送するようにしている。これによって更新後の意図しないオーバーレイが印刷データに適用されてしまうといった事態を回避することができる。

【0006】

【発明が解決しようとする課題】しかしながら、この提案によると新たな印刷データが受信されたときに、同一種類のオーバーレイが存在するものとしてオーバーレイの再要求が行われず、結局、新たな印刷データに更新前のオーバーレイが適用されてしまうといった事態を発生させることになる。

【0007】また、一般に印刷データはプリンタ側の磁気ディスク等からなるスプールデータ格納手段に一旦格

納してから読み出して印刷処理を行うようになっている。このスプールデータ格納手段に格納した印刷データはその格納の順序に読み出されて処理されるとは限らない。例えば更新前のオーバーレイで印刷を行う印刷データと更新後のオーバーレイで印刷を行う印刷データとが、一緒に処理される場合もある。このような場合には、印刷データに適用するオーバーレイが不適切な場合が生じてくる。

【0008】そこで本発明の目的は、プリンタ側で常に適切な印刷資源を適用して印刷処理を行えるようにしたプリントシステムを提供することにある。

【0009】

【課題を解決するための手段】請求項1記載の発明では、(イ)通信ケーブル等の伝送路と、(ロ)この伝送路を介して接続され、印刷データおよびその印刷処理時に資源として要求されるオーバーレイ等の印刷資源を用いて印刷を行うプリンタと、(ハ)印刷データを格納する印刷データ格納手段と、印刷資源を格納する印刷資源格納手段と、印刷資源格納手段に格納された印刷資源のそれぞれの版数を管理する版数管理手段と、印刷資源ならびに印刷データをプリンタに転送する転送手段と、版数の最も新しい印刷資源を選択し前記転送手段に転送させる印刷資源選択手段とを備えた印刷制御装置とをプリントシステムに具備させる。

【0010】すなわち請求項1記載の発明では、印刷制御装置が印刷資源についての版数を管理し、最新のものをプリンタに転送することでプリンタ側が常に最新の印刷資源を利用できるようにしている。

【0011】請求項2記載の発明では、(イ)通信ケーブル等の伝送路と、(ロ)この伝送路を介して接続され、印刷データおよびその印刷処理時に資源として要求されるオーバーレイ等の印刷資源を用い、印刷資源についてはその名称を指定して印刷を行うプリンタと、

(ハ)印刷データを格納する印刷データ格納手段と、印刷資源を格納する印刷資源格納手段と、印刷資源格納手段に格納された印刷資源を更新するたびにその名称を変える変名付与手段と、印刷資源ならびに印刷データをプリンタに転送する転送手段とを備えた印刷制御装置とをプリントシステムに具備させる。

【0012】すなわち請求項2記載の発明では、印刷制御装置側で印刷資源の更新を行うたびにその名前を変えてプリンタ側に送出を行うようにさせ、プリンタ側では印刷資源の名前を指定しながらその使用を行うようにさせる。これにより、複数の印刷資源が同一種類の印刷資源で版数の異なるものを使用する場合でも、これらを区別して使用することができる。

【0013】請求項3記載の発明では、(イ)通信ケーブル等の伝送路と、(ロ)この伝送路を介して接続され、印刷データおよびその印刷処理時に資源として要求されるオーバーレイ等の印刷資源を用いて印刷を行うプ

リンタと、(ハ)印刷データを格納する印刷データ格納手段と、印刷資源を格納する印刷資源格納手段と、プリンタ内に存在する印刷資源およびその更新に関する情報を管理する管理テーブルと、印刷資源ならびに印刷データをプリンタに転送する転送手段と、管理テーブルを用いてプリンタ内の各印刷資源のうち最新のものを除外させる印刷資源削除手段とを備えた印刷制御装置とをプリントシステムに具備させる。

【0014】すなわち請求項3記載の発明では、印刷制御装置側に各プリンタの印刷資源を管理するための管理テーブルを用意させ、プリンタで同一種類の版数の異なる印刷資源を次々と使用していったときには、古いものを消すようにして印刷資源の管理を実現する。

【0015】請求項4記載の発明では、(イ)通信ケーブル等の伝送路と、(ロ)この伝送路を介して接続され、印刷データおよびその印刷処理時に資源として要求されるオーバーレイ等の印刷資源を用いて印刷を行うプリンタと、(ハ)印刷データを格納する印刷データ格納手段と、印刷資源を格納する印刷資源格納手段と、これらの格納手段に格納された複数の印刷データならびにこれらに付随する印刷資源をプリンタに転送する転送手段と、この転送手段によって転送されたすべての印刷データについて印刷処理が完了したときこれを判別する印刷処理完了判別手段と、印刷処理完了判別手段が印刷処理の完了を判別したとき前記印刷資源の更新を行わせる更新タイミング設定手段とを備えた印刷制御装置とをプリントシステムに具備させる。

【0016】すなわち請求項4記載の発明では、1つのプリンタで複数の印刷データが処理されるとき、これらの印刷進行状況を監視して、これらの処理がすべて終了した時点で印刷資源の更新を行うようにすることで、版数の異なる印刷資源の整理を行う。

【0017】

【実施例】以下実施例につき本発明を詳細に説明する。

【0018】図1は本発明の一実施例におけるプリントシステムの機能的な構成を表わしたものである。このプリントシステムは、印刷制御装置としてのホストコンピュータ11と、通信ケーブル12を介して接続された第1～第Nのプリンタ131～13Nから構成されている。

【0019】ホストコンピュータ11には、その制御を行うCPU(中央処理装置)21と、作業用メモリとしてのRAM(ランダム・アクセス・メモリ)22と、装置起動用のプログラムや固定的なデータを格納したROM(リード・オンリ・メモリ)23と、オーバーレイ管理のためのオーバーレイ管理テーブル24と、スプールデータ管理のためのスプール管理テーブル25とが、データバス等のバス26を介して接続されている。また、バス26には図示しない入出力ポートを介して同じく図示しない磁気ディスク等の記憶手段や回路部品が接続さ

れている。

【0020】CPU21は、この記憶手段に格納されたプログラムをRAM22上に読み出してそれを実行することにより各種の機能を実現するようになっている。このような機能部としては、スプールデータ格納部27を接続したスプールデータ処理部28や、オーバーレイ格納部31を接続したオーバーレイ管理部32や、印刷データの処理を行う印刷データ処理部33と、それぞれのプリンタ131～13Nに対するデータの入出力制御を行うデータ入出力部34を挙げることができる。

【0021】通信ケーブル12に接続された第1～第Nのプリンタの構成は実質的に同一なので、ここでは第1のプリンタ131の構成を具体的に説明する。第1のプリンタ131もCPU41を備えている。CPU41はデータバス等のバス42を介して作業用メモリとしてのRAM43と、装置起動用のプログラムや固定的なデータを格納したROM44と、ページデータを格納するページ・データメモリ45と、オーバーレイを格納するオーバーレイメモリ46と、図示しない入出力ポートを介して同じく図示しない磁気ディスク等の記憶手段や回路部品が接続されている。

【0022】CPU41は、この記憶手段に格納されたプログラムをRAM43上に読み出してそれを実行することにより各種の機能を実現するようになっている。このような機能部としては、オーバーレイ格納部48を接続したオーバーレイ管理部49や、イメージの生成を行うイメージ生成部51や、印刷ページのデータを生成する印刷ページ・データ生成部52や、ホストコンピュータ11に対するデータの入出力制御を行うデータ入出力部53を挙げることができる。また、バス42には前記した入出力ポートを介して印刷装置54も接続されている。印刷装置54は、例えばレーザプリンタによって構成されており、帳票等の印刷を実行することになる。

【0023】次に、このようなプリントシステムにおける各部の説明を行う。

【0024】ホストコンピュータ内部の説明

【0025】(a) スプールデータ処理部

【0026】スプールデータ処理部28は、次の(1)～(3)の処理を行う。まず、(1)スプールデータ格納部27から印刷データを取得し、これを印刷データ処理部33に受け渡す処理を行う。

【0027】図2は、スプールデータ格納部に格納されたスプールデータの構成を表わしたものである。磁気ディスク等から構成されるスプールデータ格納部27には、複数の印刷データ611、612、……が順次格納されるようになっている。これらの印刷データ611、612、……は、順次読み出されて印刷装置54に転送されるようになっている。

【0028】また、スプールデータ処理部28は、

(2)データ入出力部34より印刷完了通知を受け取り、該当する印刷データをスプールデータ格納部27から削除するようになっている。このとき、オーバーレイ管理部32に対して印刷の完了した印刷データについての識別情報が通知されるようになっている。更にスプールデータ処理部28は、(3)オーバーレイ管理部32からスプールデータ格納部27の状況についての問い合わせがあると、この中に存在する印刷データ611、612、……の識別子をすべて通知するようになっている。スプールデータ処理部28は、以上の(1)～(3)の処理を、スプールデータ格納部27内の印刷データ611、612、……がすべて無くなるまで繰り返すことになる。

【0029】(b) 印刷データ処理部

【0030】印刷データ処理部33は、次の(1)～(3)の処理を行う。まず、スプールデータ処理部28から印刷データを受け取り、その識別子をデータ入出力部34から印刷先のプリンタ(ここでは第1のプリンタ131として説明する。)に転送する。

【0031】図3は、印刷データの構成を表わしたものである。印刷データ61は、オーバーレイを最新のものに置き換える必要がある場合にそれを指示するオーバーレイ更新指示欄62と、印刷データにどのようなオーバーレイが適用されるかを指示するオーバーレイ適用指示欄63と、テキスト・データを所定の単位量ずつ順に格納するテキスト・データ印刷指示欄641、642……から構成されている。ここでオーバーレイ適用指示欄63には、適用されるオーバーレイの名前と印刷に適用される作成日付が記入されている。

【0032】したがって、オーバーレイが次々と更新されるような場合には、印刷データに適用されるオーバーレイの名前と適用するオーバーレイの作成または更新された日付を指定することで、適用されるオーバーレイの種類と版数を特定することができる。もちろん、オーバーレイ更新指示欄62にオーバーレイを更新する旨の指示を行っておけば、これとは関係せずに最新のオーバーレイを印刷データに適用することができる。

【0033】印刷データ処理部33は、(2)印刷データ61のオーバーレイ更新指示欄62(図3参照)に最新のオーバーレイに置き換える旨の更新指示が行われている場合には、オーバーレイ管理部32に対してオーバーレイの更新を指示するようになっている。また、

(3)印刷データ61のオーバーレイ適用指示欄63にオーバーレイを特定する記述がある場合には、これらオーバーレイ名および作成日付とをオーバーレイ管理部32に通知するようになっている。

【0034】(c) データ入出力部

【0035】データ入出力部34は、次の(1)～(5)の処理を行う。まず、(1)印刷データ処理部33から印刷データ61(図3)を受け取り、これを目的

とする第1のプリンタ13_iに転送する。また、(2)オーバーレイ管理部32からオーバーレイを受け取って、これを第1のプリンタ13_iに転送する。

【0036】図4は、オーバーレイの構成を表わしたものである。オーバーレイ71は、オーバーレイ名72、作成日付73、バージョン (version; 版) 74、作成者75といった書誌的な情報と、オーバーレイのイメージを表わしたオーバーレイ・オブジェクト76から構成されている。

【0037】データ入出力部34は、また、(3)オーバーレイ管理部32からオーバーレイの印刷指示を受け取り、これを第1のプリンタ13_iに転送する。そして、(4)第1～第Nのプリンタ13_i～13_Nから、印刷を終了した印刷データの識別子を受け取ると、スプールデータ処理部28にこれを通知する。更にデータ入出力部34は、(5)オーバーレイ管理部32から所定のプリンタ13内のオーバーレイ格納部48に格納されたオーバーレイの名前を変更する旨の指示があったとき、それをそのプリンタ13に転送する。また、オーバーレイ管理部32から所定のプリンタ13内の特定のオーバーレイを消去する旨の指示があったときには、その指示をそのプリンタ13に転送するようになっている。

【0038】(d) オーバーレイ管理部

【0039】オーバーレイ管理部32は、(1)オーバーレイを無条件に更新する運用形態の場合と、(2)条件指定でオーバーレイの更新を行う運用形態の場合とで異なった処理を行うようになっている。これらについては後に詳しく説明する。

【0040】プリンタ内部の説明

【0041】(e) データ入出力部

【0042】データ入出力部53は、(1)～(4)の処理を行う。まず、(1)図3に示した印刷データ61をホストコンピュータ11から受信し、これを印刷ページ・データ生成部52に転送する。また、(2)オーバーレイについての印刷指示をホストコンピュータ11から受信して、オーバーレイ管理部49に転送する。更に、(3)ホストコンピュータ11からオーバーレイを受信したら、これをオーバーレイ管理部49に転送する。また、(4)印刷装置54が印刷を終了させて印刷データ完了情報が出力されたら、これを受け取ってホストコンピュータ11側に転送する。

【0043】(f) 印刷ページ・データ生成部

【0044】印刷ページ・データ生成部52は、まず、(1)オーバーレイ管理部49がオーバーレイの印刷を指示した場合には、イメージ生成部51に生成されたオーバーレイを印刷する旨の指示を、該当するページの印刷指示のためのページ情報に付加する。また、(2)データ入出力部53で受信した印刷データをページ単位に分けて、ページ・データメモリ45に転送する。

【0045】(g) オーバーレイ管理部

【0046】オーバーレイ管理部49は、データ入出力部53から指示を受けて、次の(1)～(4)の処理を行う。まず(1)オーバーレイの印刷を行う旨の指示がある場合には、該当するオーバーレイをイメージ生成部51に転送し、オーバーレイのイメージを生成させる。また、その識別情報を印刷ページ・データ生成部52に転送する。

【0047】また、(2)オーバーレイをイメージ生成部51に転送したら、そのオーバーレイをオーバーレイ格納部48に格納する。更に、オーバーレイの名前を変更する旨の指示を受け取った場合には、その変更を行う。また、(4)オーバーレイの消去を行う旨の指示を受け取った場合には、該当するオーバーレイをオーバーレイ格納部48から消去する。

【0048】(h) イメージ生成部

【0049】イメージ生成部51は、次の(1)、(2)の処理を実行する。すなわち、(1)オーバーレイ管理部49からオーバーレイが転送されてきた場合には、そのオーバーレイとこれに対応する識別情報とをオーバーレイ・メモリ46に記録する。また、(2)ページ・データメモリ45から印刷ページを受け取り、これをラスター・イメージに変換して印刷装置54に出力する。そして、1ページ分の送出行われるたびに、ページ・データメモリ45から該当する印刷ページのデータを消去する。オーバーレイの印刷が指示されている印刷ページについては、印刷装置54にラスター・イメージを送出する際に、識別情報が一致するオーバーレイをラスター・イメージに変換して、同時に印刷装置54に出力することになる。

【0050】(i) 印刷装置

【0051】印刷装置54では、イメージ生成部51からラスター・イメージを受信し、図示しない印刷用紙に出力する。印刷データについての最終ページをプリントアウトした場合には、データ入出力部53に対して、印刷の終了した印刷データの識別子通知する。

【0052】次に、以上説明したプリントシステムについて、特徴となるべき箇所についての説明を次に行う。

【0053】オーバーレイ管理部の運用形態別の処理

【0054】ホストコンピュータ11側のオーバーレイ管理部32は、先に説明したように(1)オーバーレイを無条件に更新する運用形態の場合と、(2)条件指定でオーバーレイの更新を行う運用形態の場合とで異なった処理を行うようになっている。

【0055】(オーバーレイを無条件に更新する運用形態の場合)

【0056】この運用形態の場合には、ホストコンピュータ11内のオーバーレイ格納部31に格納されているオーバーレイとプリンタ13内の印刷対象となるオーバーレイが一致し、プリンタ13内では常に最新のオーバーレイを使用して印刷が行われる。

【0057】図5は、オーバーレイを無条件に更新する運用形態におけるオーバーレイ管理部の処理の流れを表わしたものである。印刷データ処理部33がオーバーレイの印刷指示を行うと、オーバーレイ管理部32はオーバーレイ管理テーブル24を参照する(ステップS101)。そして指定されたオーバーレイがこれに登録されているかどうかの判定を行う(ステップS102)。

【0058】図6は、オーバーレイ管理テーブルの内容の一例を表わしたものである。オーバーレイ管理テーブル24には、本来のオーバーレイ名81、作成日付82 および変更されたオーバーレイ名83がそれぞれのオーバーレイごとに記入されている。例えば、本来のオーバーレイ名81が“オーバーレイ名1”であるとし、その作成日付が“作成日付1”であったとすると、これはまだ名前が変更されておらず、“オーバーレイ名1”そのものがオーバーレイ名83となっている。この後、“作成日付2”の日付で更新が行われたものとする。この場合、その変更された後のオーバーレイについて“変名1”が変更されたオーバーレイ名83として登録される。更に“作成日付3”の日付で更新が行われると、その変更されたオーバーレイについてオーバーレイ名83が“変名2”に更に変更される。

【0059】図6に示した例では、本来のオーバーレイ名81が“オーバーレイ名1”のこのオーバーレイは“作成日付3”の日付で更に更新が行われ、そのとき“変名5”が変更されたオーバーレイ名83となる。“オーバーレイ名2”のオーバーレイについては、“作成日付4”で初めて作成され、“作成日付6”で示す作成日付で更新され、“変名6”に変更されることになる。

【0060】この図6で下の3つ欄64には、オーバーレイ管理テーブル24に実際に記入されるデータの例を表わしたものである。この例では“KANRI”という本来のオーバーレイ名81のオーバーレイが92年8月13日に作成され、92年8月20日にはこれが更新されてオーバーレイ名83が“\$00009”になったこと、および、これが更に92年9月10日に更新されて、オーバーレイ名83が“\$00010”になったことがデータとして表わされている。

【0061】図5に戻って説明を続ける。該当するオーバーレイがオーバーレイ管理テーブル24に登録されている場合には(ステップS103; Y)、そのオーバーレイ71(図4)をオーバーレイ格納部31から読み出し、その作成日付73を図6のオーバーレイ管理テーブル24における作成日付82と比較する(ステップS105)。この結果、両者が一致しない場合(ステップS106; N)、すなわちオーバーレイ格納部31から読み出したオーバーレイ71の作成日付73の方が新しい場合には、データ入出力部34を介してその更新されたオーバーレイ71をプリンタ13に転送する(ステップ

S107)。そして、オーバーレイ管理テーブル24の作成日付の更新を行う(ステップS108)。

【0062】図7は、オーバーレイ管理テーブルの要部を表わしたものである。オーバーレイ管理テーブル24の“作成日付1”で表わされた作成日付82の“オーバーレイ名1”というオーバーレイ名83が、“作成日付2”で表わされた作成日付82に更新され、オーバーレイ名83も“オーバーレイ名2”に変更されている。

【0063】このようにしてオーバーレイ管理テーブル24の作成日付の更新が行われたら、該当のプリンタ13にこのオーバーレイ71におけるオーバーレイ・オブジェクト76を使用した印刷が指示される(ステップS109)。すなわち、この場合には、ホストコンピュータ11が所有する最新のオーバーレイ・オブジェクト76がプリンタ13に転送され、これを使用して印刷が行われることになる。

【0064】一方、ステップS103で印刷の指定されたオーバーレイ71がオーバーレイ管理テーブル24に登録されていないとされた場合には(N)、データ入出力部34を介してそのオーバーレイ71をプリンタ13に転送する(ステップS110)。この場合には、そのオーバーレイ71が新規のものであるので、オーバーレイ管理テーブル24にこれを新しく登録する(ステップS111)。そして、該当のプリンタ13にこのオーバーレイ71のオーバーレイ・オブジェクト76を使用した印刷を指示することになる(ステップS109)。

【0065】また、ステップS106でオーバーレイ格納部31から読み出したオーバーレイ71の作成日付73がオーバーレイ管理テーブル24の作成日付82と一致した場合には(Y)、プリンタ13の所有するオーバーレイ71は最新のものであるということになる。そこで、この場合にはオーバーレイ71の転送は行わず、このオーバーレイ71におけるオーバーレイ・オブジェクト76を使用した印刷が直ちに指示されることになる(ステップS109)。

【0066】(条件指定でオーバーレイの更新を行う運用形態の場合)

【0067】次に、図3に示した印刷データ61に作成日付の指定が行われている場合について説明する。この場合には、新しいオーバーレイと古いオーバーレイが共にプリンタ13内部に保管され、指定された日付のオーバーレイが印刷に使用されることになる。

【0068】図8は、印刷データ処理部からオーバーレイの印刷指示を受け取った場合のオーバーレイ管理部の処理の流れを表わしたものである。印刷データ処理部33がオーバーレイの印刷指示を行うと、オーバーレイ管理部32はオーバーレイ管理テーブル24を参照する(ステップS201)。そして指定されたオーバーレイがこれに登録されているかどうかの判定を行い(ステップS202)、登録されていないければ(ステップS20

3 ; N)、登録無し時の処理を行う(ステップS204)。

【0069】図9は、図8のステップS204における登録無し時の処理の内容を表わしたものである。この場合には、図4に示したオーバーレイ71が入力され(ステップS301)、その作成日付73が印刷データ61で指定された作成日の範囲内であるかどうかの判別が行われる(ステップS302)。例えば印刷データのオーバーレイ適用指示欄63の作成日付指定として“92年7月1日から92年7月15日”という指定が行われており、作成日付73としてこれに該当するものがなかったような場合には(ステップS303 ; N)、オーバーレイ71が不在の場合と同様の処理を行う(ステップS304)。これについては、図5のステップS110およびステップS111で説明した。すなわち、この場合には指定したオーバーレイ71がないので、オーバーレイ格納部31に格納されたそのオーバーレイ71をプリンタ13に転送し印刷に使用させることになる。

【0070】これに対して、印刷データのオーバーレイ適用指示欄63の作成日付指定の日付のものがオーバーレイ管理テーブル24に登録されている場合には(ステップS303 ; Y)、その指定されたオーバーレイ71をデータ入出力部34を介してプリンタ13に転送する(ステップS305)。次に、これをオーバーレイ管理テーブル24にその作成日付と共に登録する(ステップS306)。そして、該当のプリンタ13にこのオーバーレイ71におけるオーバーレイ・オブジェクト76を使用した印刷が指示されることになる(ステップS307)。すなわち、この場合には、印刷データで指定された版数のオーバーレイ71を使用して印刷が行われることになる。

【0071】図8に戻って説明を続ける。指定されたオーバーレイがオーバーレイ管理テーブル24に登録されていると判定された場合には(ステップS203 ; Y)、次に同一のオーバーレイ71で印刷データ61によって指定された作成日の範囲内のものが存在するかどうかの検索が行われる(ステップS205)。範囲内のものが存在しなければ(ステップS206 ; N)、元が同一のオーバーレイ・オブジェクト自体は存在するので、オーバーレイ管理部32は、そのオーバーレイ・オブジェクトを使用した印刷を該当のプリンタ13に指示することになる(ステップS207)。

【0072】これに対して、印刷データ61によって指定された作成日の範囲内のオーバーレイ71がオーバーレイ管理テーブル24に登録されている場合には(ステップS206 ; Y)、そのオーバーレイをオーバーレイ格納部31から入力する(ステップS208)。そしてそのオーバーレイ71の作成日付73が指定の範囲内であるかどうかを判定し(ステップS209)、そうでなければ(ステップS210 ; N)、オーバーレイ71が

不在時の処理を行う(ステップS211)。これはステップS304の処理と同様である。

【0073】そのオーバーレイ71の作成日付73が指定の範囲内であれば(ステップS210 ; Y)、そのオーバーレイ71に対応する変名を生成する(ステップS212)。これは、図6で説明した変更後のオーバーレイ名83のことである。変名は、図6に示した“\$00009”、“\$00010”のように通し番号で生成すれば、新旧の別が分かり易く、かつ変名が重複するおそれがない。

【0074】オーバーレイ管理部32は、その変名されたオーバーレイ71を、データ入出力部34から該当のプリンタ13に転送させる(ステップS213)。この後、これをオーバーレイ管理テーブル24に新たに作成日付と共に登録する(ステップS214)。このとき、変名は、変更後のオーバーレイ名83として登録することはもちろんである。該当のプリンタ13には、この変名の行われたオーバーレイ・オブジェクト76を使用した印刷が指示されることになる(ステップS207)。

【0075】図10は、プリンタ内のオーバーレイを最新のものに更新する旨の指示(更新指示)を受けた場合のオーバーレイ管理部の処理の流れを説明するためのものである。印刷データ処理部33からオーバーレイの更新指示があったら、オーバーレイ管理部32は更新指示が適用されている状態であるかどうかを判定する(ステップS401)。適用中であれば(ステップS402 ; Y)、作業を終了させる(エンド)。

【0076】更新指示の適用中ではない場合には(ステップS402 ; N)、スプールデータ格納部27内に処理中の印刷データ61(図3参照)以外の印刷データが存在するかどうかの判定を行う(ステップS403)。具体的には、スプールデータ格納部27の情報を要求して取得し、そのサーチを行う。そのような印刷データが存在する場合には(ステップS404 ; Y)、オーバーレイを最新のものに更新すると印刷データ間で新旧のオーバーレイを別々に適用することができなくなる。そこで、このような印刷データの処理が完了するまでの「状態」を管理するためにスプール管理テーブルを作成する(ステップS405)。そして、更新指示適用中の表示を新たに行うことになる(ステップS406)。

【0077】図11は、スプール管理テーブルの一例を表わしたものである。スプール管理テーブル91には、それぞれの印刷データの名前とそれらの状態が記入されるようになっている。例えば“印刷データ1”については印刷が完了しており、“印刷データ2”についてはプリンタ13に送出されて印刷装置54(図1)で印刷中か印刷を待機している状態となっている。この場合には、「印刷中」と表示される。“印刷データ5”の場合にはプリンタ13に送出されていない状態、すなわち印刷待ちの状態である。

【0078】一方、ステップS404でスプールデータ格納部27に処理中の印刷データ61しか存在しない場合には(N)、プリンタ内のオーバーレイを最新のものに更新するための処理を実行する(ステップS407)。

【0079】図12は、図10のステップS407で示したプリンタ内におけるオーバーレイの更新処理を具体的に表わしたものである。この処理でホストコンピュータ11は、まず図6に示したオーバーレイ管理テーブル24を取得する(ステップS501)。そして、このオーバーレイ管理テーブル24にオーバーレイの登録があるかどうかを判定し(ステップS502)、登録があれば(ステップS503; Y)、最新のオーバーレイのエントリを抽出する(ステップS504)。図6の場合には、例えば本来の“オーバーレイ名1”81については、“変名5”が付されたオーバーレイが最新であれば、このエントリを抽出することになる。

【0080】“変名5”の最新のオーバーレイのエントリが抽出されたら、本来の“オーバーレイ名1”81が共通するこれ以外のオーバーレイがプリンタ13内から消去される(ステップS505)。この例では、オーバーレイ名83が“オーバーレイ名1”、“変名1”、“変名2”の各オーバーレイがプリンタ13内部から消去されることになる。これは、プリンタ13内に格納できるオーバーレイは有限なので、古いオーバーレイを整理するためである。

【0081】このようにして1種類のオーバーレイ名81に関してオーバーレイ管理テーブル24の整理を行ったら、オーバーレイ格納部31からこの“オーバーレイ名1”81に関する最新のオーバーレイを入力する(ステップS506)。そして、このオーバーレイの作成日付がオーバーレイ管理テーブル24で整理された後の対応するオーバーレイと一致するかどうかの判定が行われる(ステップS507)。これは、最新のオーバーレイがオーバーレイ管理テーブル24に登録されているかどうかを確認するためである。

【0082】両作成日が一致しなければ(ステップS508; N)、プリンタ13が所有しているそのオーバーレイが最新のものではないことになる。そこで、このオーバーレイをプリンタ13から削除する(ステップS509)。また、該当する処理エントリをオーバーレイ管理テーブル24から削除してしまう(ステップS510)。これは、次にそのオーバーレイが必要とされたときにプリンタ13にこれを新しく転送し、またオーバーレイ管理テーブル24に新規に登録すればよい趣旨である。

【0083】ステップS508で両作成日が一致すれば(Y)、その整理後のオーバーレイが変名したものかどうかを判定する(ステップS511)。前記した例では、オーバーレイ名81が“オーバーレイ名1”で変更

後のオーバーレイ名83が“変名5”なので両者は一致しない。このような場合には(ステップS512; Y)、プリンタ13における変更後のオーバーレイ名83を指定されたものに変更する(ステップS513)。この例では、変更後のオーバーレイ名83が“変名5”となっていたのを、本来のオーバーレイ名81と同一の“オーバーレイ名1”に変更することになる。

【0084】この後、ステップS510に進んで、現在処理したエントリをオーバーレイ管理テーブル24から削除する。なお、ステップS512で両オーバーレイ名81、83が一致している場合には、このような処理を行う必要がない。そこで直ちにステップS510に進むことになる。このようにして、処理を進行させ、処理の終了したエントリを順次削除していき、オーバーレイ管理テーブル24にオーバーレイが登録されていない状態になったら(ステップS503; N)、処理が終了することになる(エンド)。

【0085】図13はスプールで更新する際に、プリンタ内のオーバーレイを最新のものに更新する処理を説明するためのものである。ホストコンピュータ11側のスプールデータ格納部27にスプールした印刷データについてプリンタ13側でその処理が終了すると、ホストコンピュータ11は印刷が完了したことを表わす印刷完了データ・セットの識別子を受信する(ステップS601)。ホストコンピュータ11は、オーバーレイの更新指示が有効であるかどうかの判定を行い(ステップS602)。無効であれば(ステップS603; N)、オーバーレイを最新のものに更新することなく処理を終了させる(エンド)。

【0086】一方、オーバーレイの更新指示が有効であれば(ステップS603; Y)、スプール管理テーブル91(図11)が入力される(ステップS604)。そして、このテーブルの該当する印刷データに印刷完了データ・セットの登録(図11における「印刷済み」)があるか否かが判定される(ステップS605)。無ければ(ステップS606)、更に処理を行うことなく作業が終了する(エンド)。有れば(ステップS606; Y)、その印刷データに対して「印刷済み」の表示が行われる(ステップS607)。

【0087】このようにしてスプール管理テーブル91の印刷データの1つについて新しく「印刷中」の表示が「印刷済み」に変更されたら、このテーブルを検索して、印刷の完了していないデータ・セットが存在するかどうかの判定が行われる(ステップS608)。存在すれば(ステップS609; Y)、この状態ではまだプリンタ内のオーバーレイを最新のものに更新することができない。そこで、この場合も処理を終了させる(エンド)。

【0088】これに対して、スプール管理テーブル91内に印刷を完了させていないデータ・セットが無くなれば

ば(ステップS609;Y)、プリンタ13内でオーバーレイの更新を行うことが可能になる。そこで、オーバーレイの更新処理が実行される(ステップS610)。これは、図10のステップS407と同様の処理であり、その詳細は図12で説明した。オーバーレイの更新処理が終了すると、そのスプール管理テーブル91は不要になる。そこで、そのスプール管理テーブル91の削除が行われて(ステップS611)、処理が終了することになる(エンド)。

【0089】なお、スプールデータ格納部27には、次々と印刷データが格納されていく。したがって、スプール管理テーブル91はこれら印刷データの格納に伴って次々と作成されていくものであり、これらはそれぞれステップS611で任務完了によって削除されることになる。

【0090】以上説明した実施例ではオーバーレイを無条件に更新するか否かの設定について特に説明しなかったが、このような設定はホストコンピュータ11の図示しないキーボードやマウス等の入力手段によって行ってもよいし、処理を行う一連の印刷データとの関係で予めプログラムされていてもよい。

【0091】また実施例では印刷資源の版数の管理のためのデータとして作成日を使用した。作成日時等の更に詳細な時間情報が版数管理のために使用されるようになっていてもよい。また、このような時間情報の他に、例えば版数の通し番号等のように一般に用いられる他の版数情報を本発明でも用いることができるのは当然である。

【0092】

【発明の効果】以上説明したように請求項1記載の発明によれば、各プリンタに印刷データや印刷資源の転送を行う印刷制御装置に、印刷資源のそれぞれの版数を管理する版数管理手段と、版数の最も新しい印刷資源を選択してプリンタに転送させる印刷資源選択手段とを具備させたので、印刷制御装置が印刷資源についての版数を管理し、最新のものをプリンタに転送することでプリンタ側が常に最新の印刷資源を利用することができる。

【0093】請求項2記載の発明では、各プリンタに印刷データや印刷資源の転送を行う印刷制御装置に、印刷資源を更新するたびにその名称を変える変名付与手段を具備させ、印刷資源の更新を行った場合には変名を付けてプリンタに転送するようにした。このため、プリンタ側ではこの変名を用いて印刷資源の対応付けを行うことで、同一種類の印刷資源で版数の異なるものを使用する場合でも、これらを区別して使用することができるという効果がある。

【0094】請求項3記載の発明では、各プリンタに印刷データや印刷資源の転送を行う印刷制御装置に、プリンタ内に存在する印刷資源およびその更新に関する情報を管理する管理テーブルと、管理テーブルを用いてプリ

ンタ内の各印刷資源のうち最新のものを除外を消去させる印刷資源削除手段とを具備させ、プリンタに版数の異なる印刷資源が順次転送されていったときのこれらの印刷資源の整理を印刷制御装置側で行えるようにした。

【0095】請求項4記載の発明では、各プリンタに印刷データや印刷資源の転送を行う印刷制御装置に、印刷データを格納する印刷データ格納手段と、印刷資源を格納する印刷資源格納手段と、これらの格納手段に格納された複数の印刷データならびにこれらに付随する印刷資源をプリンタに転送する転送手段と、この転送手段によって転送されたすべての印刷データについて印刷処理が完了したときこれを判別する印刷処理完了判別手段と、印刷処理完了判別手段が印刷処理の完了を判別したとき前記印刷資源の更新を行わせる更新タイミング設定手段とを具備させ、1つのプリンタで複数の印刷データが処理されるとき、これらの印刷進行状況を監視して、これらの処理がすべて終了した時点で印刷資源の更新を行うようにすることで、版数の異なる印刷資源の整理を可能にした。

【図面の簡単な説明】

【図1】 本発明の一実施例におけるプリントシステムの機能的な構成を表わしたブロック図である。

【図2】 スプールデータ格納部に格納されたスプールデータの構成を表わした説明図である。

【図3】 印刷データの構成を表わした説明図である。

【図4】 オーバーレイの構成を表わした説明図である。

【図5】 オーバーレイを無条件に更新する運用形態におけるオーバーレイ管理部の処理の流れを表わした流れ図である。

【図6】 オーバーレイ管理テーブルの内容の一例を表わした説明図である。

【図7】 オーバーレイ管理テーブルの要部を表わした説明図である。

【図8】 印刷データ処理部からオーバーレイの印刷指示を受け取った場合のオーバーレイ管理部の処理の表わした流れ図である。

【図9】 図8のステップS204における登録無し時の処理の内容を表わした流れ図である。

【図10】 プリンタ内のオーバーレイの更新指示を受けた場合の処理の様子を示す流れ図である。

【図11】 スプール管理テーブルの一例を表わした説明図である。

【図12】 図10のステップS407で示したプリンタ内におけるオーバーレイの更新処理を具体的に表わした流れ図である。

【図13】 プリンタ内のオーバーレイを最新のものに更新する処理を表わした流れ図である。

【符号の説明】

11…ホストコンピュータ、12…通信ケーブル、13

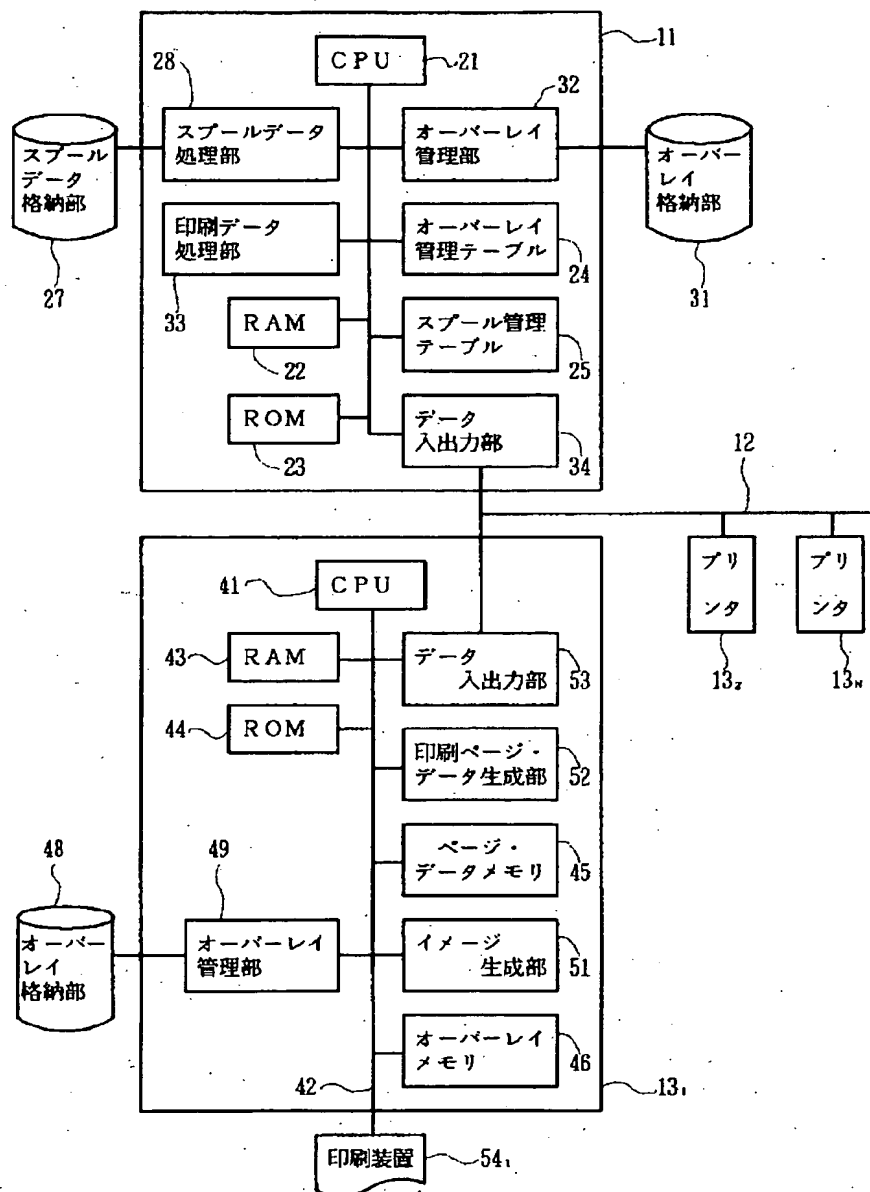
17

18

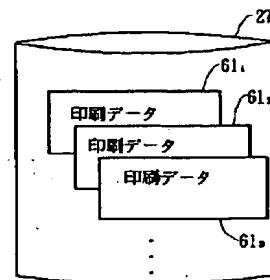
1...13N...プリンタ、21、41...CPU、22、43...RAM、24...オーバーレイ管理テーブル、25、91...スプール管理テーブル、27...スプールデータ格納部、28...スプールデータ処理部、31、48...オー

バーレイ格納部、32、49...オーバーレイ管理部、33...印刷データ処理部、34、53...データ入出力部、54...印刷装置、61...印刷データ、71...オーバーレイ

【図1】



【図2】



【図3】

62	オーバーレイ更新指示	61	
63	オーバーレイ適用指示	オーバーレイ名	作成日付指定
64	テキスト・データ印刷指示	テキスト・データ	
64	テキスト・データ印刷指示	テキスト・データ	
64	テキスト・データ印刷指示	テキスト・データ	
		⋮	

【図4】

72	73	74	75
オーバーレイ名	作成日付	バージョン	作成者
オーバーレイ・オブジェクト			
76			

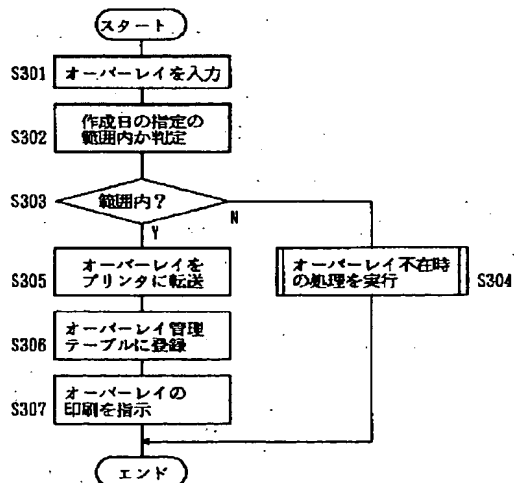
【図6】

81	82	83	24
"オーバーレイ名1"	"作成日付1"	"オーバーレイ名1"	
"オーバーレイ名1"	"作成日付2"	"変名1"	
"オーバーレイ名1"	"作成日付3"	"変名2"	
"オーバーレイ名2"	"作成日付4"	"オーバーレイ名2"	
"オーバーレイ名1"	"作成日付5"	"変名5"	
"オーバーレイ名2"	"作成日付6"	"変名6"	
KANRI	920813	KANRI	
KANRI	920820	\$00009	
KANRI	920910	\$00010	

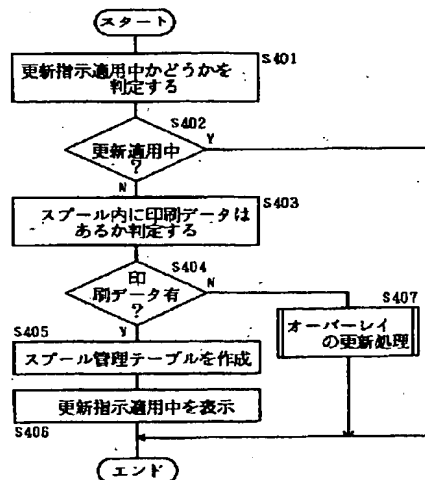
【図7】

83	24	82
"オーバーレイ名1"	"作成日付1"	
"オーバーレイ名2"	"作成日付2"	

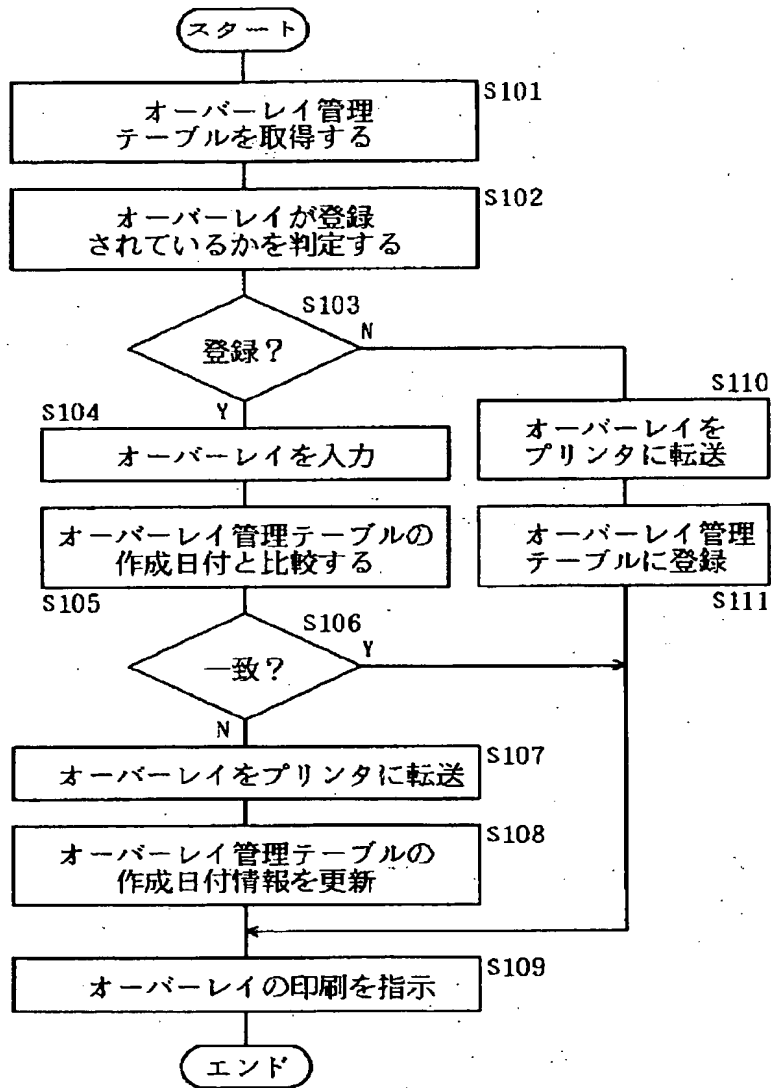
【図9】



【図10】



【図5】

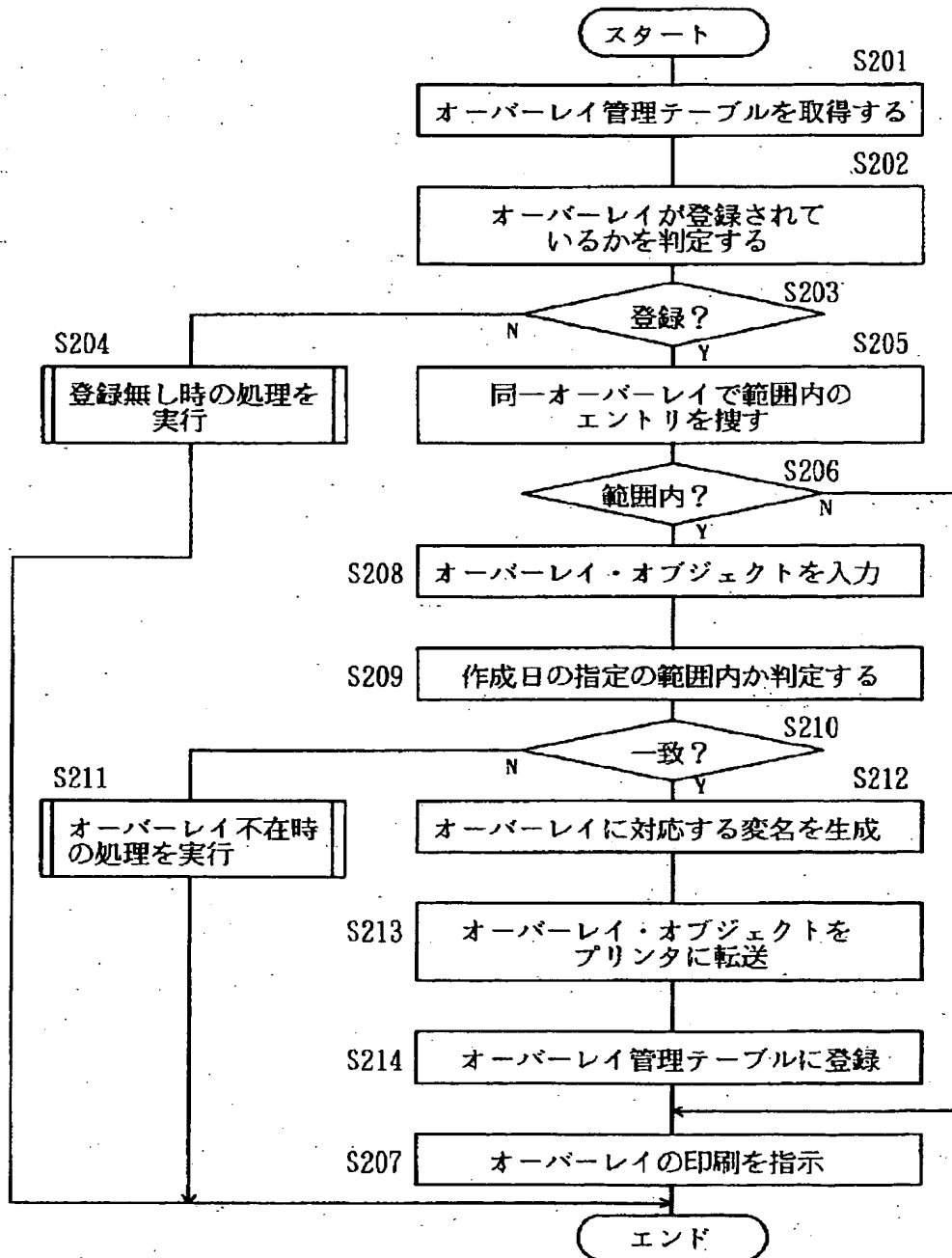


【図11】

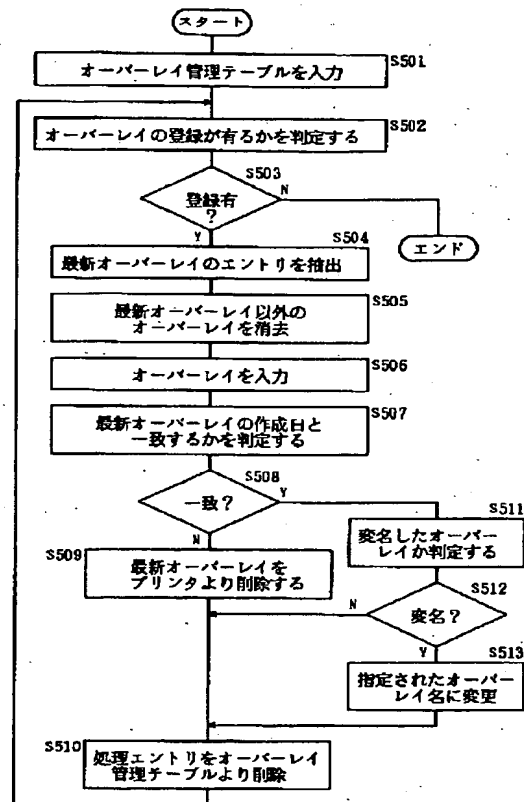
91

"印刷データ 1"	印刷済み
"印刷データ 2"	印刷中
"印刷データ 3"	印刷中
"印刷データ 3"	印刷待ち
"印刷データ 4"	印刷済み
"印刷データ 5"	印刷待ち

【図8】



【図12】



【図13】

